

HS No 636464

REPORT NUMBER: 217-MGA-03-001

**SAFETY COMPLIANCE TESTING FOR
FMVSS NO. 217
SCHOOL BUS EMERGENCY EXITS AND WINDOW
RETENTION AND RELEASE**

**2003 American Transportation Corporation
IC3S530 School Bus
NHTSA No.: C30902**

**PREPARED BY:
MGA RESEARCH CORPORATION
5000 WARREN ROAD
BURLINGTON, WI 53106**



Final Report Date: March 6, 2003

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
400 SEVENTH STREET, SW, ROOM 6115 (NVS-220)
WASHINGTON, D.C. 20590**

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Prepared by:


James Hansen, Project Technician

Date: March 6, 2003

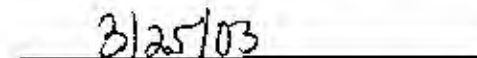
Reviewed by:


Michael Janovicz, Program Manager

Date: March 6, 2003

FINAL REPORT ACCEPTED BY:


Amanda Prescott


Date of Acceptance

Technical Report Documentation Page

1. Report No. 217-MGA-03-001		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle Final Report of FMVSS 217 Compliance Testing of 2003 American Transportation Corp IC3S530 School Bus NHTSA No.:C30902			5. Report Date March 6, 2003		
			6. Performing Organization Code MGA		
7. Author(s) James Hansen, Project Technician Michael Janovicz, Project Manager			8. Performing Organization Report No. 217-MGA-03-001		
9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105			10. Work Unit No.		
			11. Contract or Grant No. DTNH22-02-D-01057		
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Enforcement Office of Vehicle Safety Compliance (NVS-221) 400 Seventh St., S.W. Room 6115 Washington, D.C. 20590			13. Type of Report and Period Covered Final Report 1/08/03 to 3/6/03		
			14. Sponsoring Agency Code NVS-220		
15. Supplementary Notes					
16. Abstract Compliance tests were conducted on the subject 2003 American Transportation Corp IC3S530 School Bus, NHTSA No. C30902 in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-217-06 for the determination of FMVSS 217 compliance. Test failures were as follows: 1. The retroreflective tape outlining the exterior of the front and rear roof hatch opening is silver in color. FMVSS 217 requires the retroreflective tape color to be either white, red, or yellow in color for emergency exits.					
17. Key Words Compliance Testing Safety Engineering FMVSS 217			18. Distribution Statement Copies of this report are available from: NHTSA Technical Information Services (TIS) Room 5108, (NPO-230) 400 Seventh Street, S.W. Washington, D.C. 20590 (202) 365-4946		
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 65	22. Price		

TABLE OF CONTENTS

<u>Section</u>		<u>Page No</u>
1	Purpose of Compliance Test	1
2	Test Data Summary	2
	Data Sheet 1 – Test Summary	3
3	Compliance Test Data	4
	Data Sheet 2 – Provision of Emergency Exits	5
	Data Sheet 3 – Emergency Exit Door Operational Requirements	7
	Data Sheet 4 – Emergency Exit Identification and Labeling	8
	Data Sheet 5 – Tape Reflectivity Test	11
	Data Sheet 6 – Force Tests to Unlatch the Emergency Exit	12
	Data Sheet 7 – Force Tests for Open the Emergency Exit	16
	Data Sheet 8 – Emergency Exit Extension	19
	Data Sheet 9 – Window Retention Test	20
4	Instrumentation and Equipment List	22
5	Photographs	23
6	Test Plots	57
7	Laboratory Notice of Test Failure	60

SECTION 1
PURPOSE OF COMPLIANCE TEST

Tests were conducted on a MY2003 American Transportation Corp 1C3S530 School Bus, NHTSA No. C30902, in accordance with the specifications of the Office of Vehicle Safety Compliance (OVSC) Test Procedures TP-217-06 to determine compliance to the requirements of Federal Motor Vehicle Safety Standards (FMVSS) 217, "School Bus Emergency Exits and Window Retention and Release".

This program is sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-02-D-01057.

SECTION 2
TEST DATA SUMMARY

Based on the tests performed, the MY2003 American Transportation Corp IC3S530 School Bus, NHTSA No. C30902 did not appear to meet the requirements of FMVSS 217. See Data Sheet 1 for Test Summary on the following page.

DATA SHEET 1
TEST SUMMARY

GENERAL VEHICLE IDENTIFICATION

Model Year/Make/Model:	2003 American Transportation Corp.	
NHTSA No.:	C30902	
GVWR:	12,474 kg	
Build Date for Bus Chassis:	Not Found	
VIN:	4DRBRABN73B955119	
Chassis VIN:	Not Found	
Seating Capacity:	65	
Type of Bus:	Type C	
Tire Pressure from tire placard (at capacity):	Front: 758 kPa	Rear: 689 kPa
Odometer Reading:	1680 km	

	PASS/FAIL
S5.1 WINDOW RETENTION	PASS
S5.2 PROVISION OF EMERGENCY EXITS	PASS
Meets minimum exit provisions	PASS
Meets all other exit requirements	PASS
Meets requirements for additional exits	PASS
S5.2.3.1.A EMERGENCY EXIT DOOR OPERATIONAL REQUIREMENTS	PASS
S5.3 EMERGENCY EXIT RELEASE	PASS
Forces to unlatch the emergency exits	PASS
Forces to open the emergency exits	PASS
S5.4 EMERGENCY EXIT OPENING	PASS
S5.5 EMERGENCY EXIT LABELING AND IDENTIFICATION	FAIL
49CFR 571.131 S5.6 TAPE REFLECTIVITY	NOT TESTED

COMMENTS: NONE

SECTION 3
COMPLIANCE TEST DATA

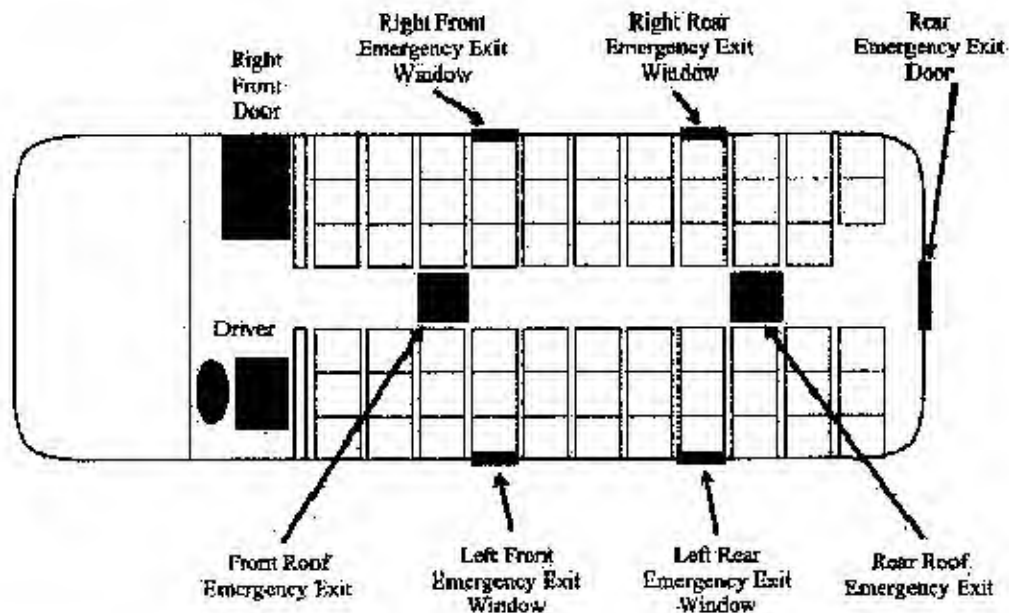
The following data sheets document the results of testing on the 2003 American Transportation Corp IC3S530 School Bus, NHTSA No. C30902.

DATA SHEET 2

PROVISION OF EMERGENCY EXITS

Test Vehicle: 2003 American Transportation Corp IC3S530 School Bus
 Test Lab: MGA Research-Wisconsin Operations

NHTSA No.: C30902
 Test Date: 1/08/03



		Height (mm)	Width (mm)
1	Left Front Exit Window	485	595
2	Left Rear Exit Window	485	595
3	Right Front Exit Window	485	595
4	Right Rear Exit Window	485	595
5	Rear Exit Door	1313	920
6	Roof Exit -- Front	513	565
7	Roof Exit -- Rear	513	565

Seating Capacity: 65 (Including Driver)


	PASS/FAIL
Bus meets minimum emergency exit provision, based upon Table 1	PASS

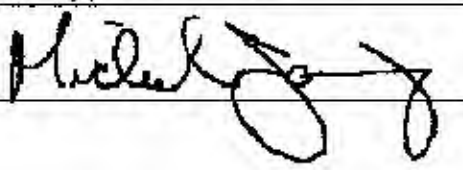
Comments: NONE

DATA SHEET 2 (CONTINUED)
PROVISION OF EMERGENCY EXITS

		PASS/FAIL
1	Rear Emergency Door – opens outward and is hinged on the right side (either side, if the bus has a GVWR of 10,000 pounds or less)	PASS
2	Side Emergency Door – hinged on its forward side. No more than one side emergency exit door is located, in whole or in part, within the same post and roof bow panel space.	N/A
3	Rear Push Out Window – provides a minimum opening clearance 41 cm high and 122 cm wide (16" x 48")	N/A
4	Roof Exit – is hinged on its forward side, and operable from both the inside and outside the vehicle	PASS
5	There is an even number of side emergency exit windows on each side of bus.	PASS
6	The bus is not equipped with both sliding and push-out windows, (except for buses equipped with rear push out emergency exit windows).	PASS
7	A right side emergency exit door	N/A

COMMENTS: NONE

Recorded By: 

Approved By: 

Date: 1/8/03

DATA SHEET 3
EMERGENCY EXIT DOOR OPERATIONAL REQUIREMENTS

Test Vehicle: 2003 American Transportation Corp IC3S530 School Bus
Test Lab: MGA Research-Wisconsin Operations

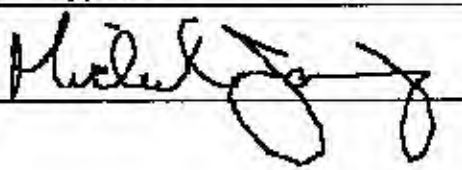
NHTSA No.: C30902
Test Date: 1/08/03

		PASS/FAIL
1	The engine starting system does NOT operate if any Emergency Exit is LOCKED	N/A ⁽¹⁾
2	All Emergency Door and Roof Exits can be released by one person (from inside and outside of bus)	PASS
3	When the Release Mechanism is NOT in the closed position and the vehicle ignition is in the "ON" position, there is a continuous warning sound audible at the Driver's DSP and in the vicinity of the Emergency Door(s) having the unclosed mechanism.	PASS
4	Emergency exit release mechanism does not use remote controls or central power systems	PASS

COMMENTS:

⁽¹⁾ The emergency exits cannot be locked.

Recorded By: 

Approved By: 

Date: 1/8/03

DATA SHEET 4A
EMERGENCY EXIT IDENTIFICATION AND LABELING


Test Vehicle: 2003 American Transportation Corp IC3S530 School Bus NHTSA No.: C30902
Test Lab: MGA Research-Wisconsin Operations Test Date: 1/08/03

EMERGENCY EXIT LABELING - INTERIOR

Exit Location	Left Front	Left Rear	Right Front	Right Rear	Roof Exit - Front	Roof Exit - Rear	Rear Door
Exit Description	Exit Window	Exit Window	Exit Window	Exit Window	Roof Hatch	Roof Hatch	Exit Door
Letter Height (cm)	5.0	5.0	5.0	5.0	5.2	5.2	5.0
Background Color	White	White	White	White	White	White	White
Location Inside	Above Window	Above Window	Above Window	Above Window	Center of Roof Hatch	Center of Roof Hatch	Above Door
Pass/Fail	PASS	PASS	PASS	PASS	PASS	PASS	PASS

OPERATING INSTRUCTIONS - INTERIOR

Exit Location	Left Front	Left Rear	Right Front	Right Rear	Roof Exit - Front	Roof Exit - Rear	Rear Door
Instructions	Lift Handle and Push Out to Open	Lift Handle and Push Out to Open	Lift Handle and Push Out to Open	Lift Handle and Push Out to Open	To Exit: Turn Handle and Push	To Exit: Turn Handle and Push	To Open Lift Up Red Bar Push Out
Letter Height (cm)	1.1	1.1	1.1	1.1	1.2	1.2	2.5 and 1.6
Letter Color	Black	Black	Black	Black	Red	Red	Black
Background Color	White	White	White	White	White	White	White
Distance From Release (cm)	1.5	2.0	2.5	2.0	5.4	5.3	3.0
Reflective Tape Color	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Reflective Tape Width	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Recorded By: 

Approved By: 

Date: 1/8/03

DATA SHEET 4B **EMERGENCY EXIT IDENTIFICATION AND LABELING**


Test Vehicle: 2003 American Transportation Corp IC35630 School Bus NHTSA No.: C30902
 Test Lab: MGA Research-Wisconsin Operations Test Date: 1/08/03


EMERGENCY EXIT LABELING - EXTERIOR

Exit Location	Left Front	Left Rear	Right Front	Right Rear	Roof Exit - Front	Roof Exit - Rear	Rear Door
Exit Description	Exit Window	Exit Window	Exit Window	Exit Window	Roof Hatch	Roof Hatch	Exit Door
Letter Height (cm)	5	5	5	5	5.2	5.2	5.2
Background Color	Yellow	Yellow	Yellow	Yellow	White	White	Yellow
Location Inside	Above Window	Above Window	Above Window	Above Window	Top Center of Hatch	Top Center of Hatch	Above Door
Pass/Fail	PASS	PASS	PASS	PASS	PASS	PASS	PASS

OPERATING INSTRUCTIONS - EXTERIOR

Exit Location	Left Front	Left Rear	Right Front	Right Rear	Roof Exit - Front	Roof Exit - Rear	Rear Door
Instructions	None	None	None	None	Turn Handle & Lift	Turn Handle & Lift	None
Letter Height (cm)	---	---	---	---	2.0	2.0	---
Letter Color	---	---	---	---	Red	Red	---
Background Color	---	---	---	---	White	White	---
Distance From Release (cm)	---	---	---	---	10 cm	10 cm	---
Reflective Tape Color	Yellow	Yellow	Yellow	Yellow	Silver	Silver	Yellow
Reflective Tape Width	2.5	2.5	2.5	2.5	2.5	2.5	2.5 cm

Recorded By: 

Approved By: 

Date: 1/8/03

DATA SHEET 4 (CONTINUED)
EMERGENCY EXIT IDENTIFICATION AND LABELING

Test Vehicle: **2003 American Transportation Corp IC35530 School Bus**
 Test Lab: **MGA Research-Wisconsin Operations**

NHTSA No.: **C30902**
 Test Date: **1/08/03**

		PASS/FAIL
1	Each required Emergency Exit is labeled with the words "Emergency Exit" or "Emergency Door" as appropriate in letters at least 5 cm high (2") of a color that contrasts with its background.	PASS
2	Emergency Doors – The designation "Emergency Exit" or "Emergency Door" is located at the top of, or directly above the exit door on both inside and outside surfaces of the bus.	PASS
3	Roof Exits – The designation for roof exits is located on an inside surface of the exit, or within 30 cm (11.8") of the roof exit opening.	PASS
4	Emergency Window Exits – The designation is located at the top of, or directly above, or at the bottom of the emergency window exit on both the inside and outside surfaces of the bus.	PASS
5	Exit Operating Instructions indicate all motions required to unlatch and open the exit, in letters at least 1 cm (.39") high and of a color that contrast with its background and shall be located within 15 cm (5.9") of the release mechanism on the inside surface of the bus.	PASS
6	Each required Emergency Exit opening is outlined around its perimeter with a 2.5 cm (1") wide retroreflective tape of red, white, or yellow color.	FAIL ⁽¹⁾

COMMENTS:

⁽¹⁾ The retroreflective tape outlining the exterior of the front and rear roof hatch opening is silver in color. FMVSS 217 requires the retroreflective tape color to be either white, red, or yellow in color for emergency exits.

Recorded By: 

Approved By: 

Date: **1/8/03**

**DATA SHEET 5
TAPE RELECTIVITY TEST**

Test Vehicle: **2003 American Transportation Corp IC3S530 School Bus** NHTSA No.: **C30902**
 Test Lab: **MGA Research-Wisconsin Operations** Test Date: **1/08/03**

- _____ Color of retroreflective tape (white, red, or yellow)
- _____ Glass bead retroreflective element material – Fill in Part A
- _____ Prismatic retroreflective element material – Fill In Part B

SPECIFIC INTENSITY PER UNIT AREA
 (Candela Per Foot Candle Per Square Foot)

Observation Angle	Entrance Angle	Min. Req'd. Intensity	Recorded Intensity	Pass/Fail
Part A – Glass Bead				
Part B - Prismatic				

This section of tape passes the REFLECTIVITY requirement. Yes___ No___

COMMENTS: Not Tested

Recorded By: _____

Approved By: _____

Date: 1/8/03



DATA SHEET 6A
FORCE TESTS TO UNLATCH THE EMERGENCY EXITS - INTERIOR

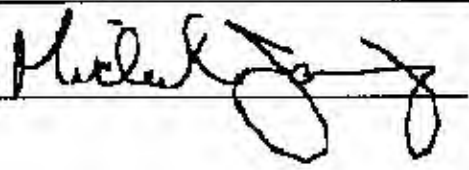
Test Vehicle: 2003 American Transportation Corp IC3S530 School Bus
 Test Lab: MGA Research-Wisconsin Operations

NHTSA No.: C30902
 Test Date: 1/08/03

Exit Location	Exit Description	High/Low Force Area	Maximum Force Requirement Newtons	Actual Force Measured (N)	Motion(s) required to Release Exit	Actual Motion(s) to Release Exit	PASS/FAIL
Left Front	Exit Window	High & Low	89	1. 22.5	Rotary	Rotate Handle Upward Counter Clockwise	PASS
				2. 18.5			
				3. 20.0			
				Average: 20.3			
Left Rear	Exit Window	High & Low	89	1. 9.0	Rotary	Rotate Handle Upward Counter Clockwise	PASS
				2. 8.0			
				3. 11.0			
				Average: 9.3			
Right Front	Exit Window	High & Low	89	1. 13.0	Rotary	Rotate Handle Upward Clockwise	PASS
				2. 13.5			
				3. 16.5			
				Average: 14.3			
Right Rear	Exit Window	High & Low	89	1. 32.0	Rotary	Rotate Handle Upward Clockwise	PASS
				2. 31.0			
				3. 28.5			
				Average: 30.5			
Roof Exit - Front	Roof Hatch	High & Low	89	1. 37.5	Rotary	Rotate Handle 90° Counter Clockwise	PASS
				2. 42.0			
				3. 41.5			
				Average: 40.3			
Roof Exit - Rear	Roof Hatch	High & Low	89	1. 28.0	Rotary	Rotate Handle 90° Counter Clockwise	PASS
				2. 25.0			
				3. 23.0			
				Average: 25.3			
Rear Door	Door Exit	High	178	1. 54.0	Rotary	Rotate Handle Upward Clockwise	PASS
				2. 49.0			
				3. 52.5			
				Average: 51.8			

COMMENTS: NONE

Recorded By:  

Approved By: 

Date: 1/8/03

DATA SHEET 6B
FORCE TESTS TO UNLATCH THE EMERGENCY EXITS - EXTERIOR

Test Vehicle: 2003 American Transportation Corp IC3S530 School Bus
 Test Lab: MGA Research-Wisconsin Operations

NHTSA No.: C30902
 Test Date: 1/08/03

Exit Location	Exit Description	High/Low Force Area	Maximum Force Requirement Newtons	Actual Force Measured (N)	Motion(s) required to Release Exit	Actual Motion(s) to Release Exit	PASS/FAIL
Left Front	Exit Window	High & Low	89	1. ---	N/A	N/A	N/A
				2. ---			
				3. ---			
				Average:			
Left Rear	Exit Window	High & Low	89	1. ---	N/A	N/A	N/A
				2. ---			
				3. ---			
				Average:			
Right Front	Exit Window	High & Low	89	1. ---	N/A	N/A	N/A
				2. ---			
				3. ---			
				Average:			
Right Rear	Exit Window	High & Low	89	1. ---	N/A	N/A	N/A
				2. ---			
				3. ---			
				Average:			
Roof Exit - Front	Roof Hatch	High	89	1. 65.0	Rotary	Rotate Handle 90° Clockwise	PASS
				2. 68.5			
				3. 69.5			
				Average: 67.7			
Roof Exit - Rear	Roof Hatch	High	89	1. 48.0	Rotary	Rotate Handle 90° Clockwise	PASS
				2. 47.0			
				3. 59.0			
				Average: 51.3			
Rear Door	Door Exit	High	178	1. 160.5	Rotary or Straight	Pull Handle Upward Counter Clockwise	PASS
				2. 136.0			
				3. 140.5			
				Average: 145.7			

COMMENTS: NONE

Recorded By

Approved By

Date: 1/8/03

DATA SHEET 7A
FORCE TESTS TO OPEN THE EMERGENCY EXITS - INTERIOR

Test Vehicle: 2003 American Transportation Corp IC33530 School Bus NHTSA No.: C30902
 Test Lab: MGA Research-Wisconsin Operations Test Date: 1/08/03

Exit Location	Exit Description	High/Low Force Area	Maximum Force Requirement Newtons	Actual Force Measured (N)	Motion(s) required to Open Exit	Actual Motion(s) to Open Exit	Passage of Ellipsoid or Parallelepiped	PASS/FAIL
Left Front	Exit Window	High & Low	178	1. 22.5	Straight and Perpendicular to the undisturbed exit surface	Straight Outward Push	Ellipsoid	PASS
				2. 23.5				
				3. 23.5				
				Average: 23.2				
Left Rear	Exit Window	High & Low	178	1. 46.0	Straight and Perpendicular to the undisturbed exit surface	Straight Outward Push	Ellipsoid	PASS
				2. 38.5				
				3. 48.0				
				Average: 41.2				
Right Front	Exit Window	High & Low	178	1. 22.0	Straight and Perpendicular to the undisturbed exit surface	Straight Outward Push	Ellipsoid	PASS
				2. 24.5				
				3. 22.0				
				Average: 22.8				
Right Rear	Exit Window	High & Low	178	1. 47.5	Straight and Perpendicular to the undisturbed exit surface	Straight Outward Push	Ellipsoid	PASS
				2. 45.5				
				3. 44.0				
				Average: 45.7				

Describe in the comments section if more than one force and motion are required to unlatch the exit.


DATA SHEET 7A (CONTINUED)
FORCE TESTS TO OPEN THE EMERGENCY EXITS - INTERIOR


Test Vehicle: 2003 American Transportation Corp IC3S630 School Bus NHTSA No.: C30902
 Test Lab: MGA Research-Wisconsin Operations Test Date: 1/08/03

Exit Location	Exit Description	High/Low Force Area	Maximum Force Requirement Newtons	Actual Force Measured (N)	Motion(s) required to Open Exit	Actual Motion(s) to Open Exit	Passage of Ellipsoid or Parallelepiped	PASS/FAIL
Roof Exit - Front	Roof Hatch	High	178	1. 60.0	Straight and Perpendicular to the undisturbed exit surface	Straight Outward Push	Ellipsoid	PASS
				2. 62.5				
				3. 58.5				
				Average: 60.3				
Roof Exit - Rear	Roof Hatch	High	178	1. 66.0	Straight and Perpendicular to the undisturbed exit surface	Straight Outward Push	Ellipsoid	PASS
				2. 83.0				
				3. 64.0				
				Average: 71.0				
Rear Door	Door Exit	High	178	1. 24.5	Straight and Perpendicular to the undisturbed exit surface	Straight Outward Push	114x61x30 Parallelepiped	PASS
				2. 22.5				
				3. 22.5				
				Average: 23.2				

Describe in the comments section if more than one force and motion are required to unlatch the exit.

COMMENTS: NONE

Recorded By: 

Approved By: 

Date: 1/8/03

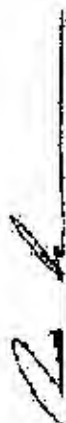

DATA SHEET 7B
FORCE TESTS TO OPEN THE EMERGENCY EXITS - EXTERIOR

Test Vehicle: 2003 American Transportation Corp IC35630 School Bus NHTSA No.: C30902
 Test Lab: MGA Research-Wisconsin Operations Test Date: 1/08/03

Exit Location	Exit Description	High/Low Force Area	Maximum Force Requirement Newtons	Actual Force Measured (N)	Motion(s) required to Open Exit	Actual Motion(s) to Open Exit	Passage of Ellipsoid or Parallelepiped	PASS/FAIL
Roof Exit - Front	Roof Hatch	High	178	1. 44.0	Straight and Perpendicular to the undisturbed exit surface	Straight Outward Pull	Ellipsoid	PASS
				2. 45.5				
				3. 46.5				
				Average: 45.3				
Roof Exit - Rear	Roof Hatch	High	178	1. 53.5	Straight and Perpendicular to the undisturbed exit surface	Straight Outward Pull	Ellipsoid	PASS
				2. 61.5				
				3. 62.0				
				Average: 59				
Rear Door	Door Exit	High	178	1. 26.5	Straight and Perpendicular to the undisturbed exit surface	Straight Outward Pull	114x61x30 Parallelepiped	PASS
				2. 28.5				
				3. 25.0				
				Average: 26.7				

Describe in the comments section if more than one force and motion are required to unlatch the exit.

COMMENTS: NONE

Recorded By: 
 Approved By:  Date: 1/8/03

**DATA SHEET 8
EMERGENCY EXIT EXTENSION**

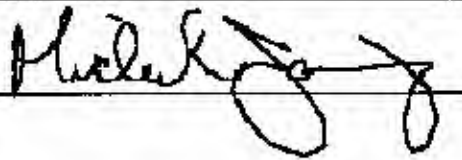
Test Vehicle: 2003 American Transportation Corp IC3S 530 School Bus
Test Lab: MGA Research-Wisconsin Operations

NHTSA No.: C30902
Test Date: 1/08/03

		PASS/FAIL
1	Exit(s) can be extended by a single person.	PASS
2	Each emergency exit door is equipped with a positive door opening device that meets the requirements (outlined in Section S5.4.1 (3) of FMVSS 217).	PASS
3	There is a 30 cm (11.81") wide clear aisle space for each side emergency door exit.	N/A
4	There is no seat or barrier which extend past the side door opening	N/A
5	For flip-up seat adjacent to the side emergency door exit it automatically assumes and retain a vertical position when not in use, so that no portion of the seat bottom is within the 30 cm (11.81") aisle clearance space	N/A
6	There is no obstruction of door latch mechanism for the rear emergency door.	PASS

COMMENTS: NONE

Recorded By: 

Approved By: 

Date: 1/8/03

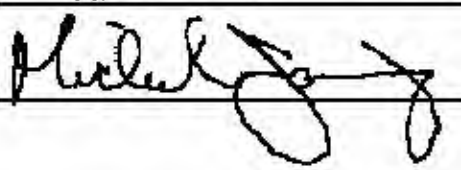
**DATA SHEET 9
WINDOW RETENTION TEST**

Test Vehicle: **2003 American Transportation Corp IC3S530 School Bus** NHTSA No.: **C30902**
 Test Lab: **MGA Research-Wisconsin Operations** Test Date: **1/08/03**

1	Test Window Identification:	Left Front Exit Window – Top Glazing
2	Provide a detailed description of the window such as fixed, push out, single or double glazed, horizontal or vertical sliding, etc.	Push Out Exit Operation
3	Provide the horizontal and vertical glazing dimensions for each panel.	544 mm x 216 mm
4	Did the window pass the retention requirements? Describe how the window structure and glazing withstood the force per the PASS/FAIL criteria:	Glazing Shattered at 210 kg - PASS
5	Did the window pass the force tests to unlatch and open the exit after the completion of the retention test?	PASS 14.8 N to Unlatch 20.8 N to Open

COMMENTS: NONE

Recorded By: 

Approved By: 

Date: 1/8/03

DATA SHEET 9 (CONTINUED)
WINDOW RETENTION TEST


Test Vehicle: **2003 American Transportation Corp IC3S530 School Bus**
Test Lab: **MGA Research-Wisconsin Operations**

NHTSA No.: **C30902**
Test Date: **1/08/03**

1	Test Window Identification:	Right Front Exit Window – Top Glazing
2	Provide a detailed description of the window such as fixed, push out, single or double glazed, horizontal or vertical sliding, etc.	Push Out Exit Operation
3	Provide the horizontal and vertical glazing dimensions for each panel.	544 mm x 216 mm
4	Did the window pass the retention requirements? Describe how the window structure and glazing withstood the force per the PASS/FAIL criteria:	Glazing deflected 38 mm at 257 kg without creating a 102 mm opening PASS⁽¹⁾
5	Did the window pass the force tests to unlatch and open the exit after the completion of the retention test?	PASS 14.2 N to Unlatch 27.0 N to Open

COMMENTS:

⁽¹⁾ Window reached the deflection requirement of S.5.1

Recorded By: 

Approved By: 

Date: 1/8/03

**SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST**

Test Vehicle: **2003 American Transportation Corp IC3S530 School Bus**
Test Lab: **MGA Research-Wisconsin Operations**

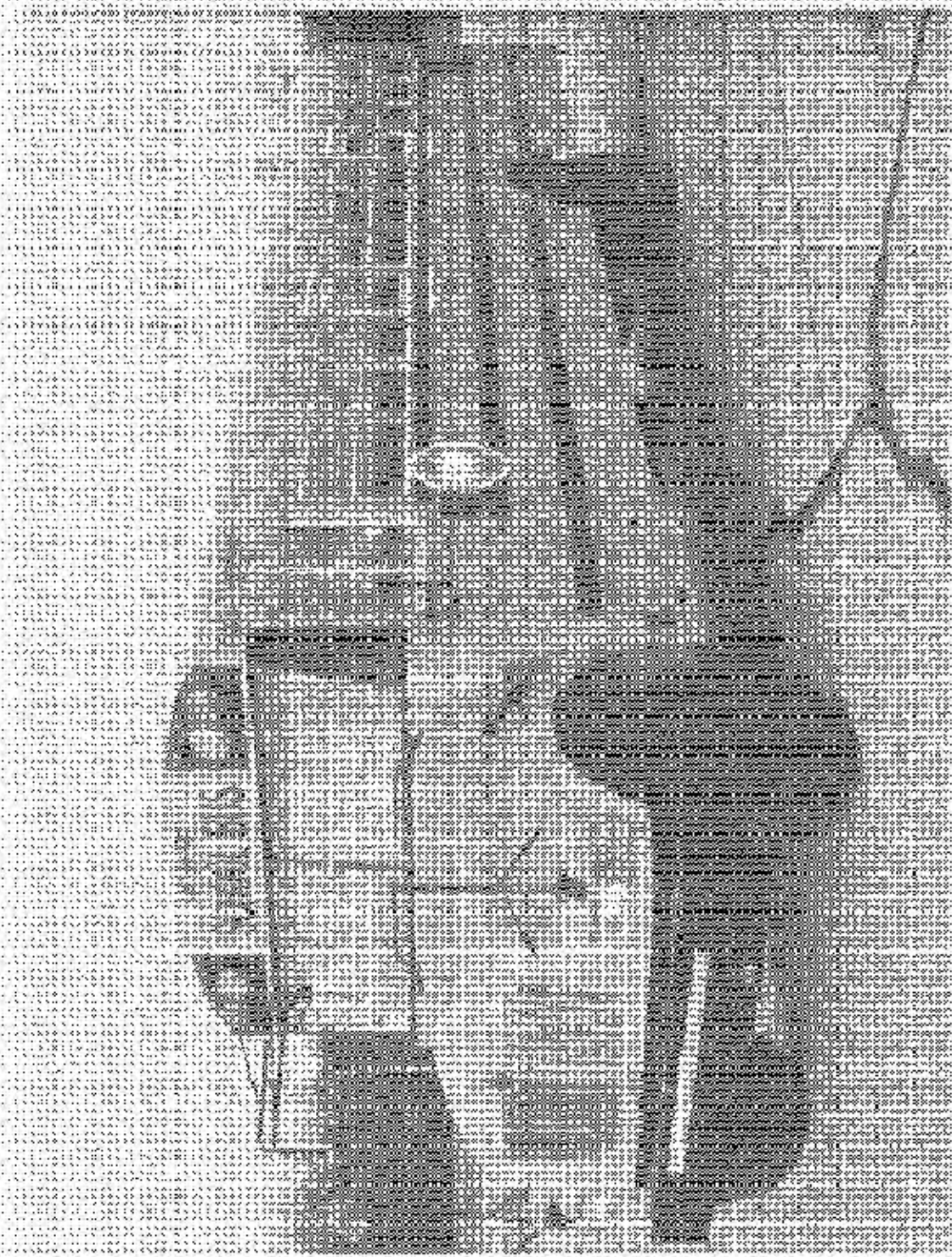
NHTSA No.: **C30902**
Test Date: **1/08/03**

Equipment	Description	Model/Serial No.	Cal. Date	Next Cal. Date
Computer	HP	Vectra / US03263612	---	---
Head Form	MGA	217	12/4/02	5/4/03
A/D Interface	Metrabyte	DAS-1802	---	---
Sphere	MGA	Sphere - 1A	12/4/02	5/4/03
Load Cell	Interface	1210AF / 88409A	10/18/02	4/18/03
Inclinometer	Digital Protractor	Pro 360 / Comp Lab	11/15/02	5/15/03
Linear Potentiometer	Celeasco	PT-101-40A / A04253	1/08/03	7/8/03
Scale	GEI	Metric / 1	1/6/03	7/6/03
Steel Tape	Stanley	Powerlock / 101	10/28/02	4/28/03
Camera	Sony	DSC-S75	---	---
Ellipsoid	MGA	ELLIP - 1A	12/4/02	5/4/03
Parallelepiped	MGA	PARA - 1A	12/4/02	5/4/03
Force Gauge	Chatillon	DFGS-R-ND / F31754	12/13/02	6/13/03
Temp. Recorder	Oregon Scientific	WM-918	10/18/02	4/18/03

SECTION 5
PHOTOGRAPHS

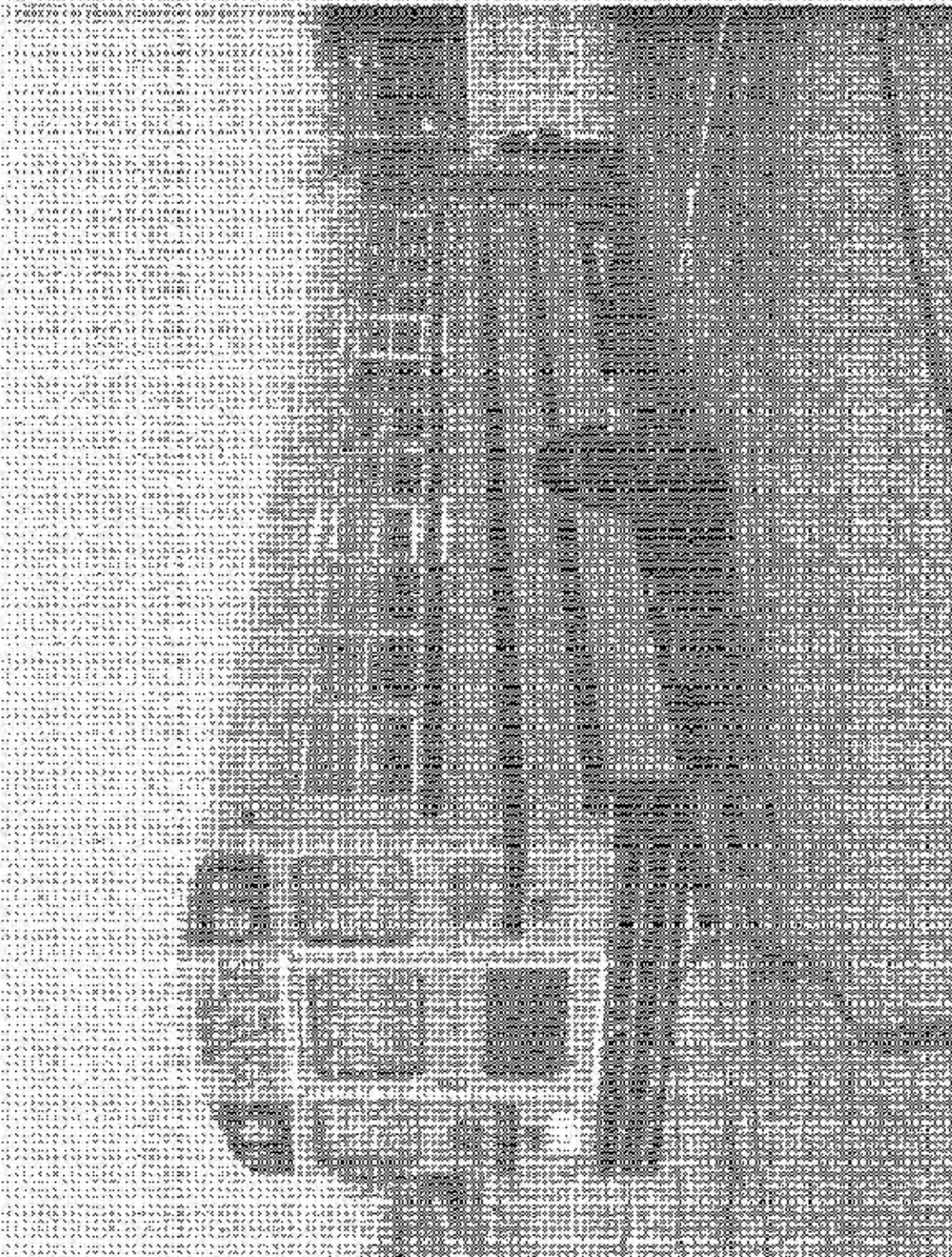
TABLE OF PHOTOGRAPHS

<u>No.</u>		<u>Page No.</u>
1	Exterior Left Front ¼ View of School Bus	25
2	Exterior Right Rear ¼ View of School Bus	26
3	Vehicle Certification and Tire Placard	27
4	Interior Front to Rear View Depicting Seating Arrangement	28
5	Interior Rear to Front View Depicting Seating Arrangement	29
6	Left Front Exit Window Identification (Outside View)	30
7	Left Front Exit Window Identification (Inside View)	31
8	Left Rear Exit Window Identification (Outside View)	32
9	Left Rear Exit Window Identification (Inside View)	33
10	Right Front Exit Window Identification (Outside View)	34
11	Right Front Exit Window Identification (Inside View)	35
12	Right Rear Exit Window Identification (Outside View)	36
13	Right Rear Exit Window Identification (Inside View)	37
14	Rear Exit Door Identification (Outside View)	38
15	Rear Exit Door Identification (Inside View)	39
16	Front Roof Hatch Identification (Outside View)	40
17	Front Roof Hatch Identification (Inside View)	41
18	Rear Roof Hatch Identification (Outside View)	42
19	Rear Roof Hatch Identification (Inside View)	43
20	Left Front Window Emergency Exit Ellipsoid Clearance	44
21	Left Rear Window Emergency Exit Ellipsoid Clearance	45
22	Right Front Window Emergency Exit Ellipsoid Clearance	46
23	Right Rear Window Emergency Exit Ellipsoid Clearance	47
24	Rear Door Emergency Exit Parallelepiped Clearance	48
25	Front Roof Hatch Emergency Exit Ellipsoid Clearance	49
26	Rear Roof Hatch Emergency Exit Ellipsoid Clearance	50
27	Loading Fixture	51
28	Retention Test of Left Front Window (Pre-Test)	52
29	Retention Test of Left Front Window (Post-Test)	53
30	Retention Test of Right Front Window (Pre-Test)	54
31	Retention Test of Right Front Window (In Progress)	55
32	Retention Test of Right Front Window (Post-Test)	56



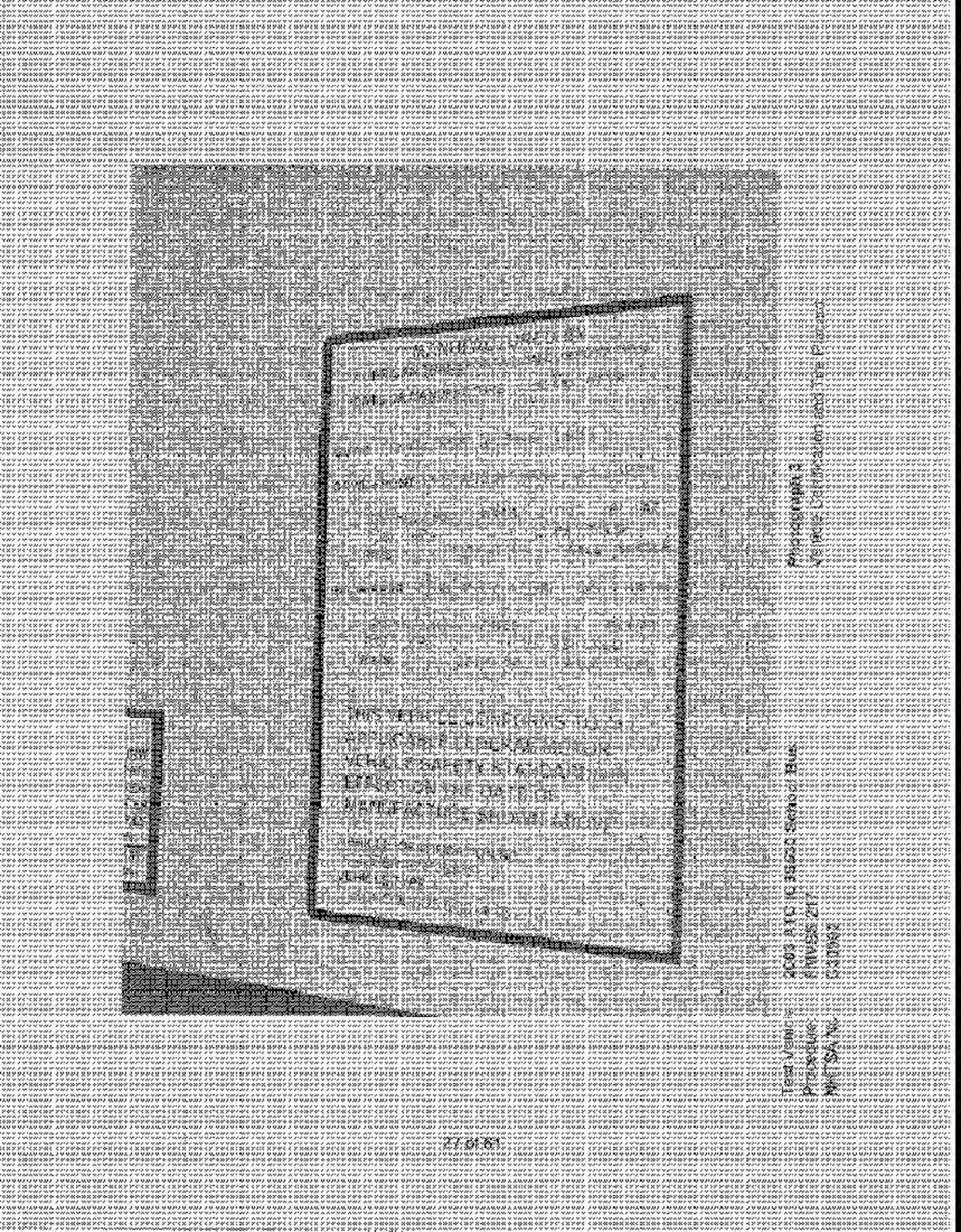
Test Vehicle: 2005 A/C IC35500 School Bus
Procedure: FMVSS 217
NHTSA No: C20552

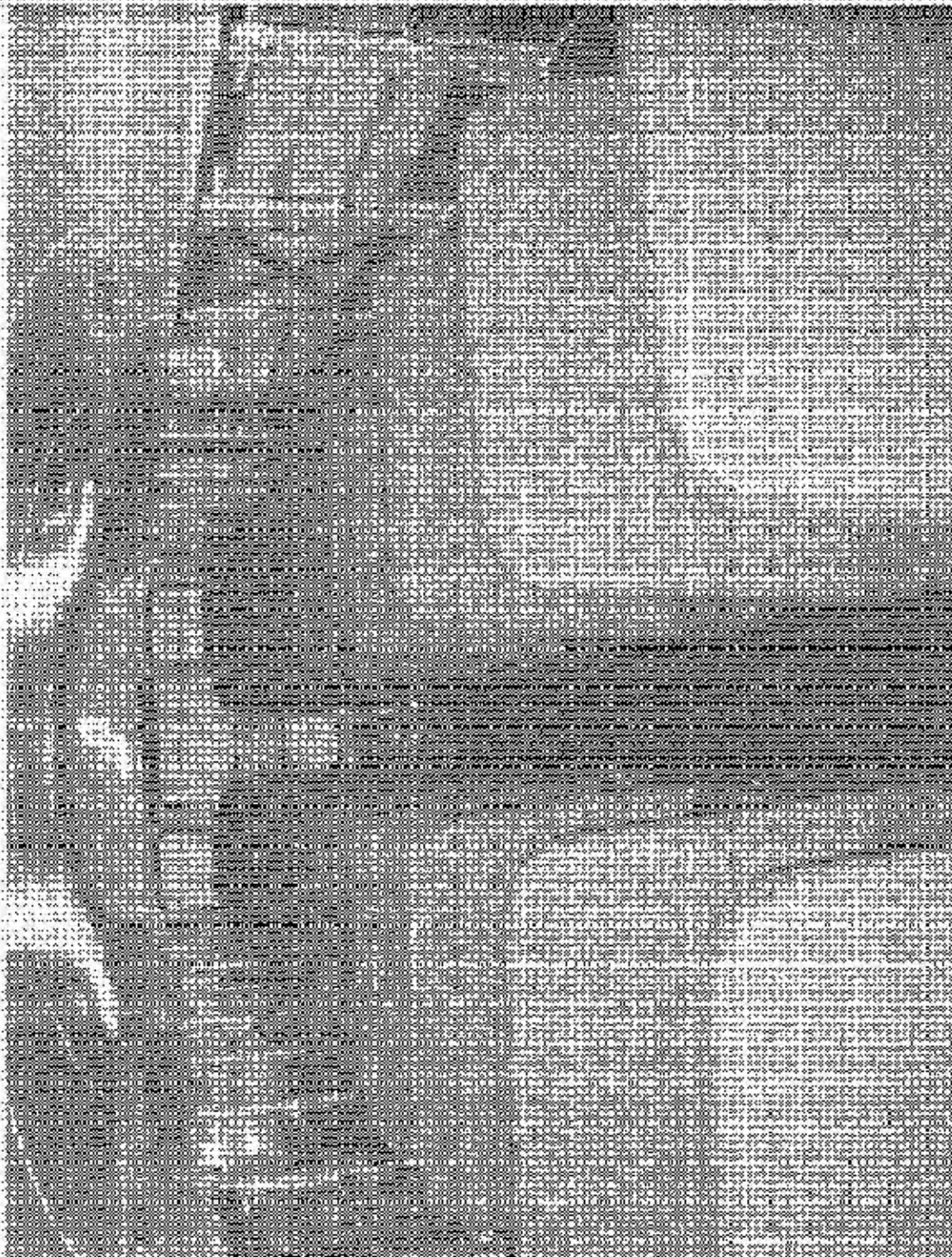
Photograph: 1
Exterior Left Front View of School Bus



Test Vehicle: 2007 GMC Acadia School Bus
Procedure: FMVSS-213
NHTSA ID: C85092

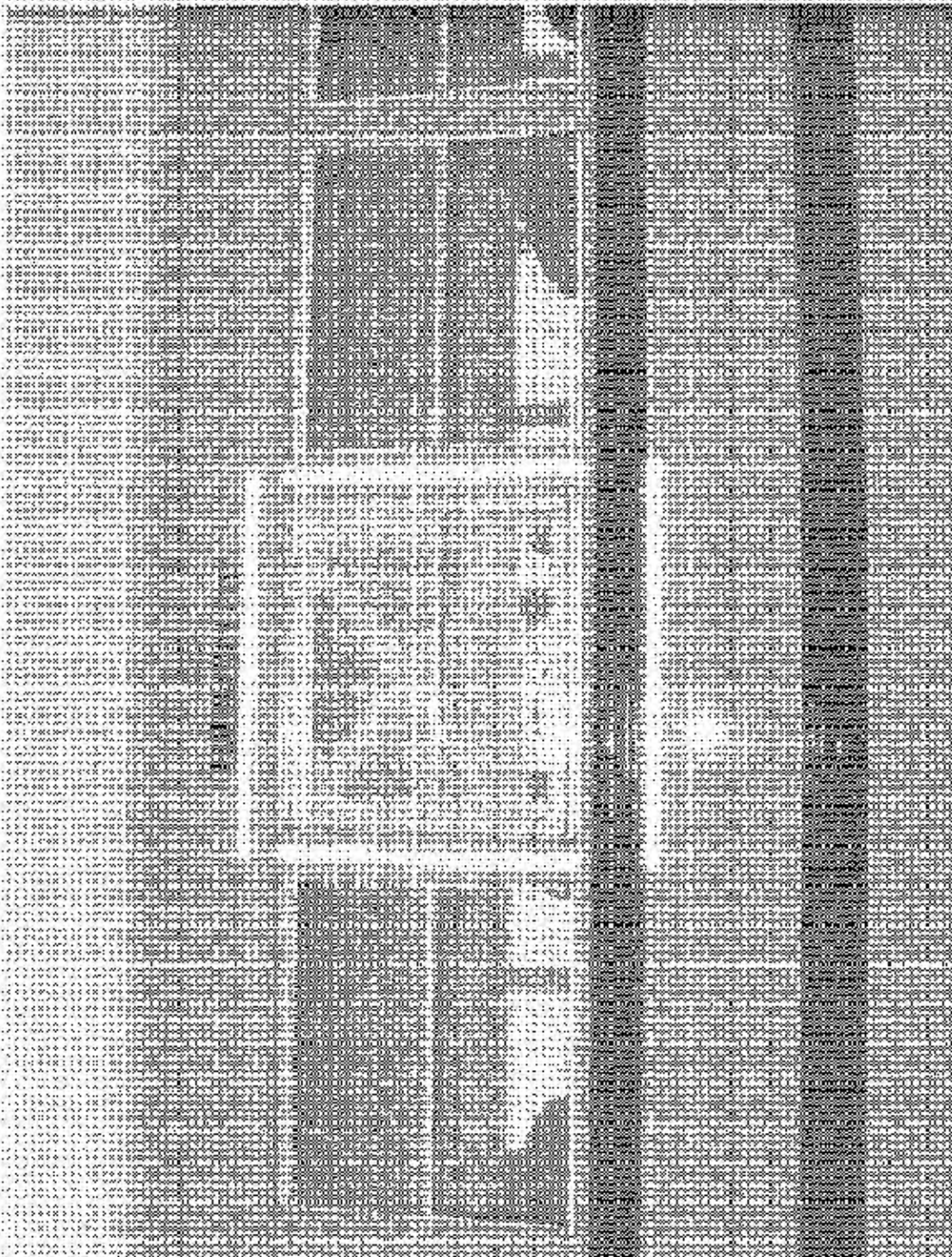
Photograph 21
Exterior Front View of School Bus





Test Vehicle: 2003 A/C Excursion Sensor Bus
Flooded: PMVSS 717
NHTSA No: C00002

Photograph 4:
Interior front to Rear View (Exterior Seals) Arrangement



Test Version 2003 A TO INASIS School Bus
Procedure FIVEAS 217
NRTSAS 030702

Pentagon 8
Lift Port for Windows (delimited) (On-line new)

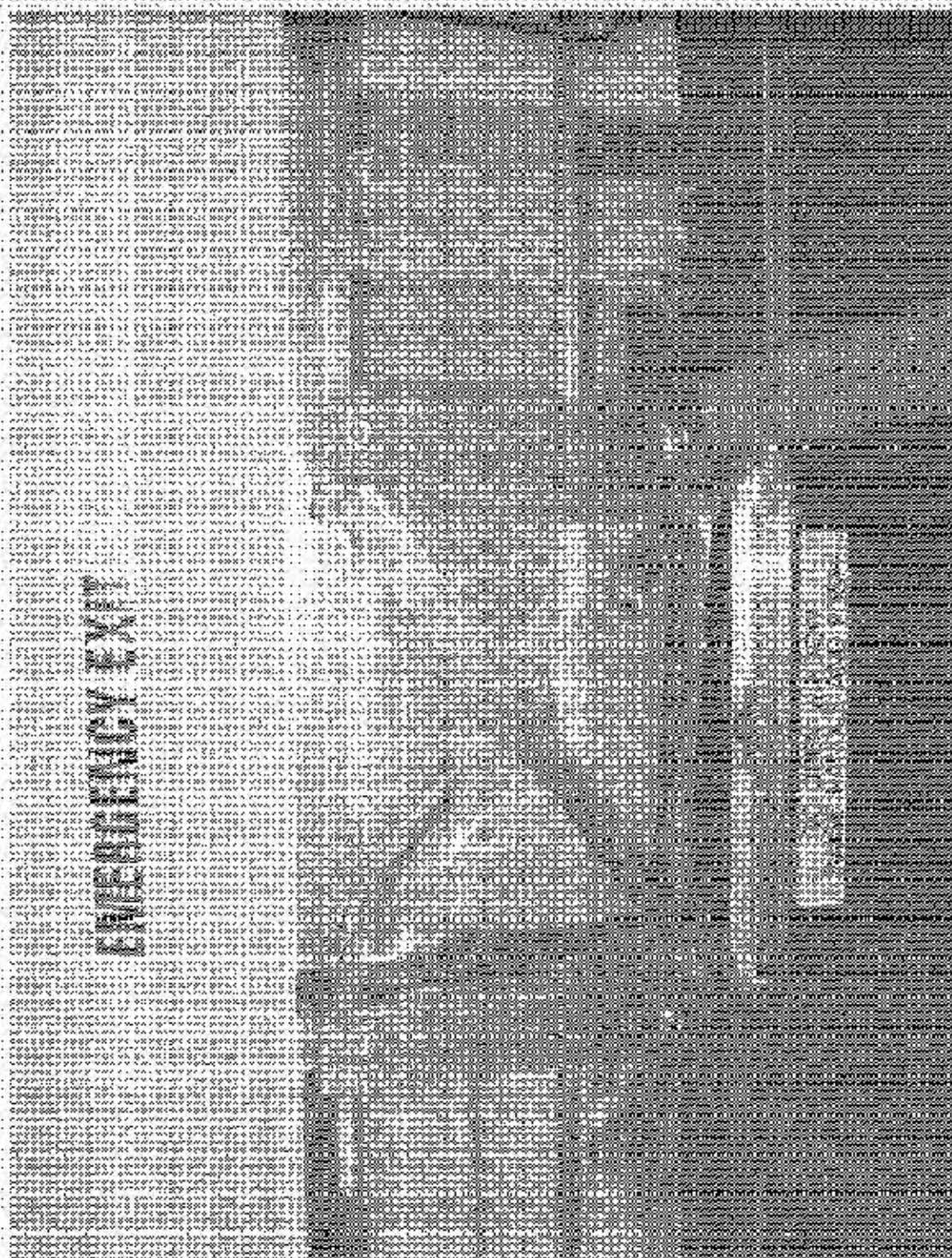
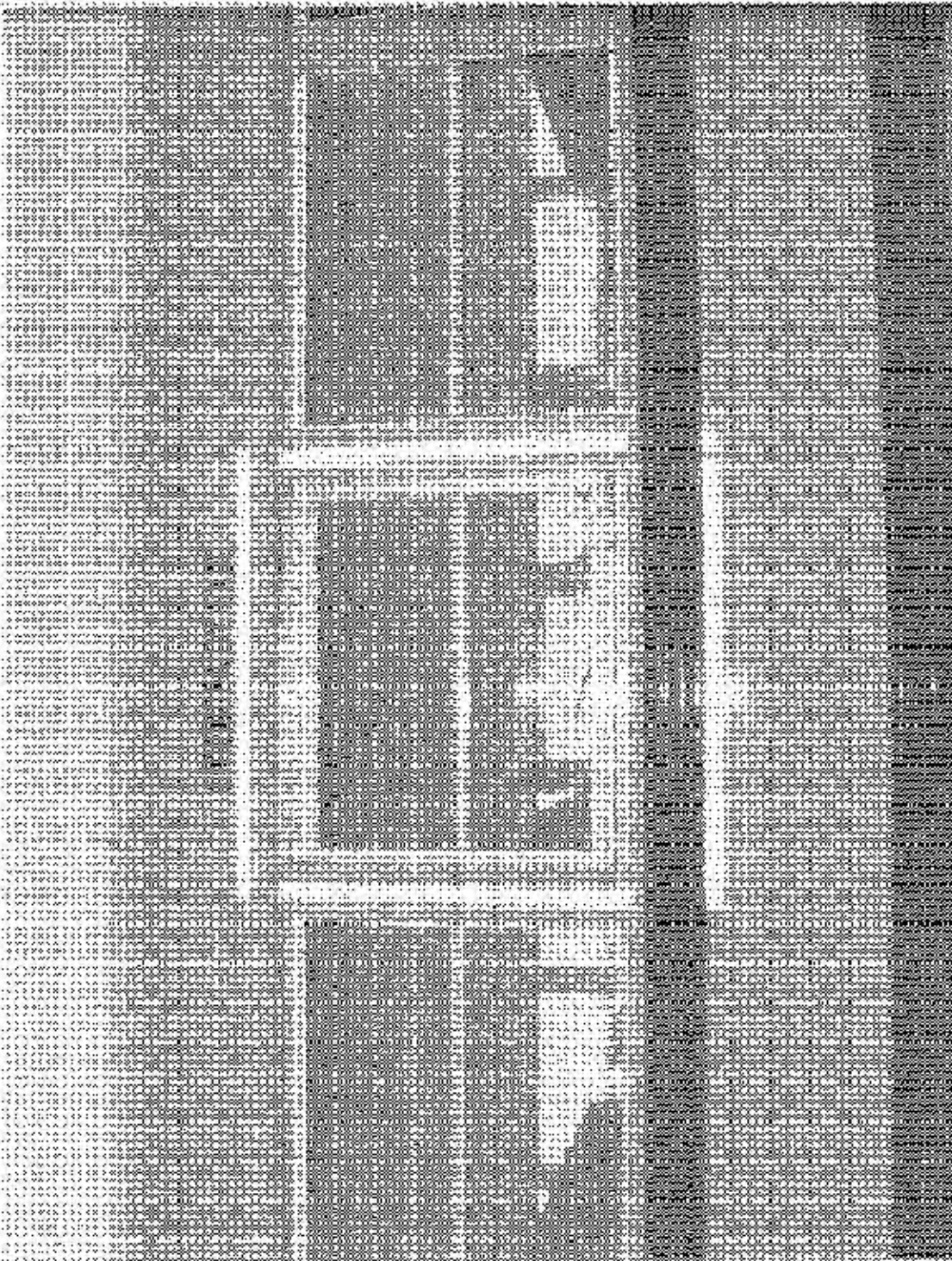


EXHIBIT EX-1

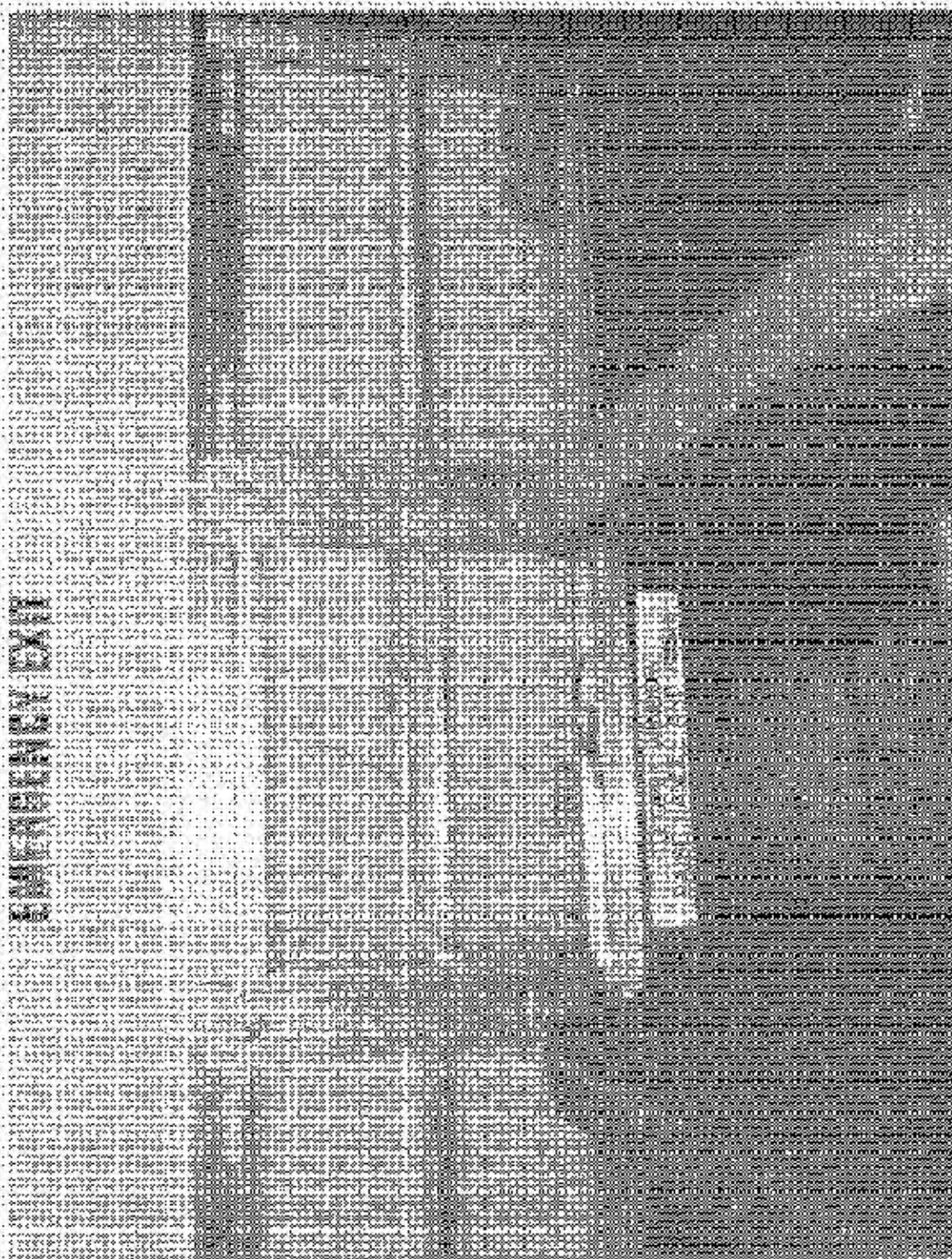
Item Vendor: 2003 ATC/CASSTC School Bus
Procedure: FMVSS 717
NHTSA No.: CUC902

Examination of
Left Front Exterior Identification (Police View)

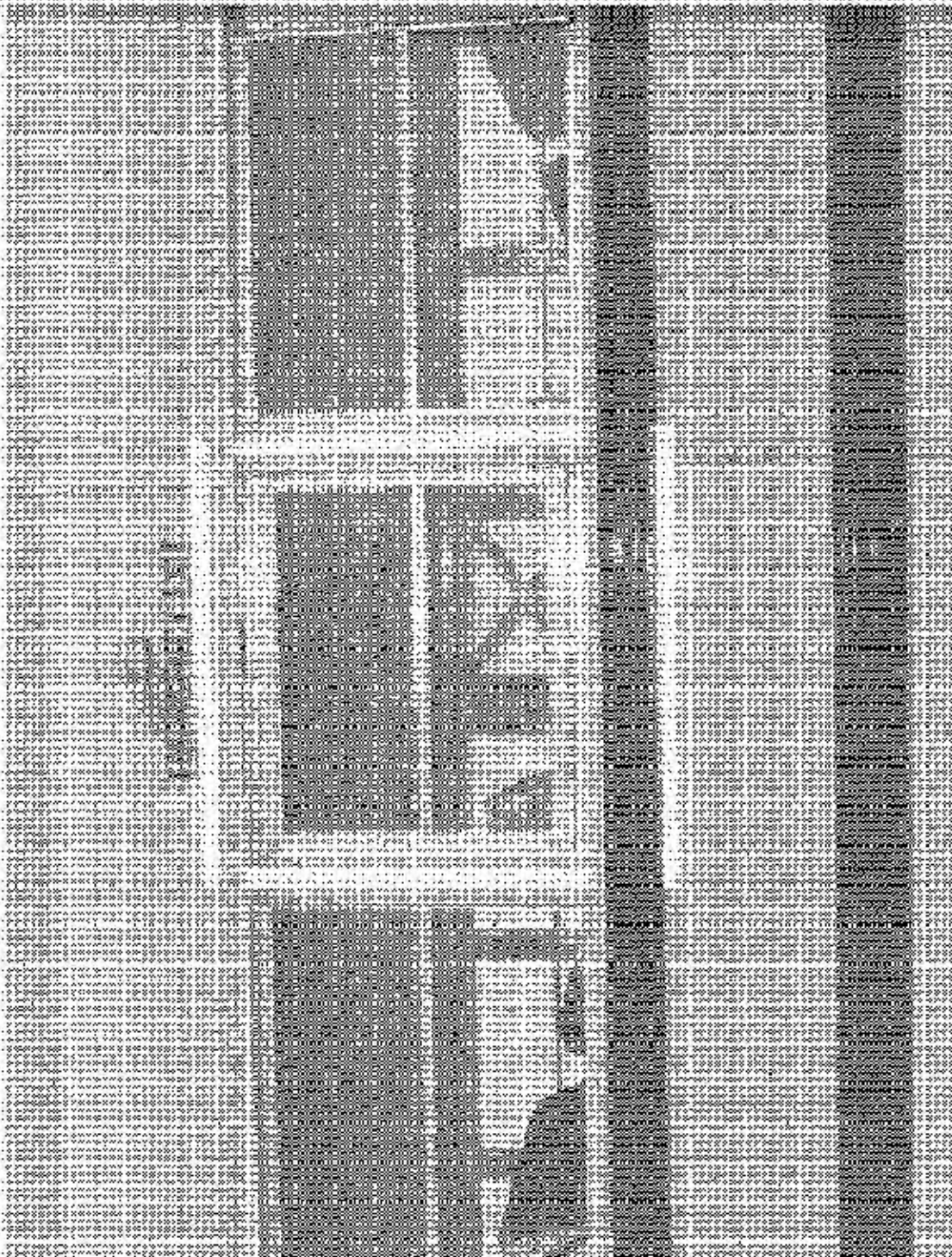


Photograph 11:
Left Hand Exit Window (Interior View)

Test Vehicle: 2002 Acura Integra
 Procedure: FMVSS #17
 NHTSA #: 050982

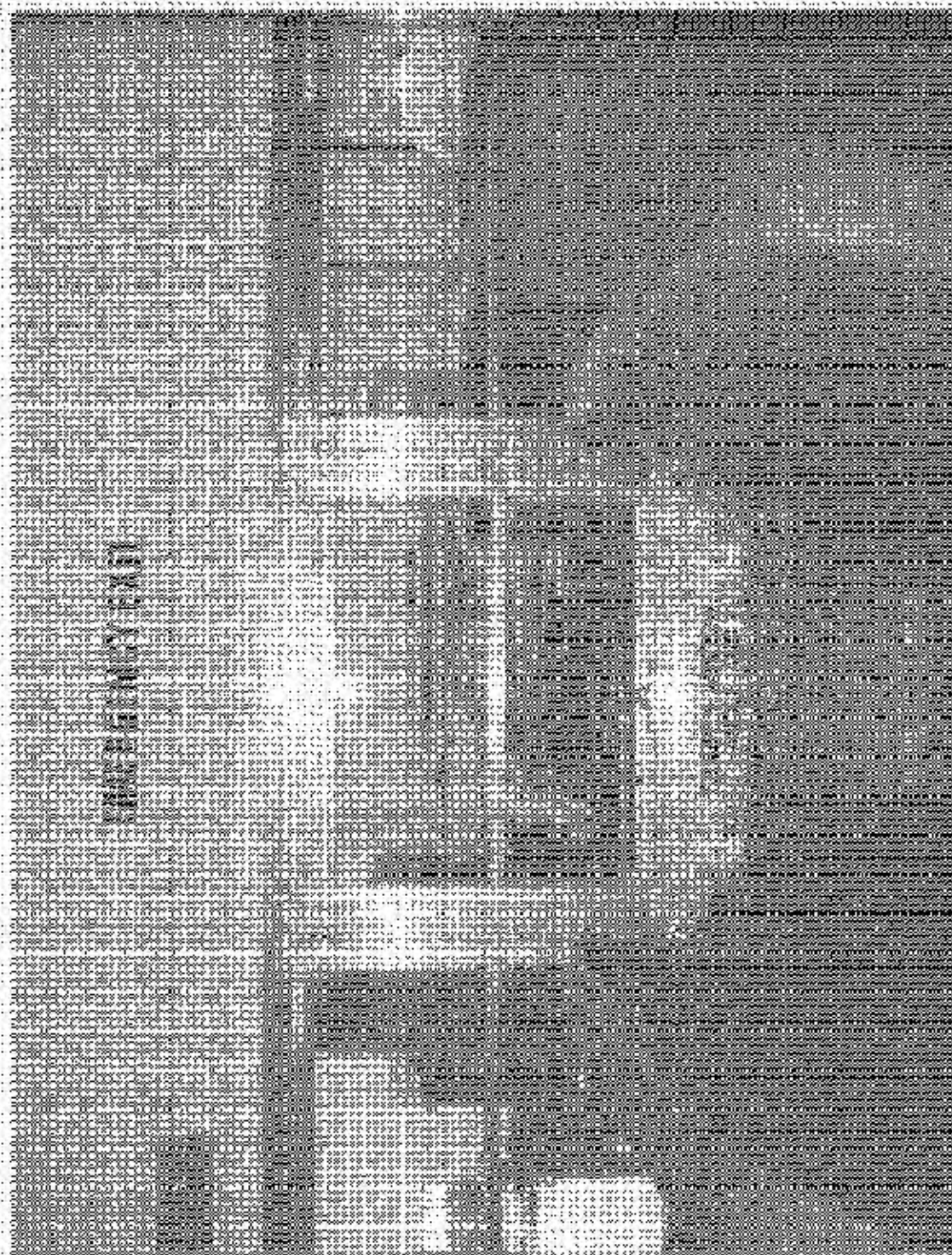


Test Vehicle: 2005 ATC 125556, School Bus
Procedure: FM 95.217
NHSTA No: 039502
Photo: N217
Left Road Exit 60000, Interchange 217



Test Vehicle: 2004 A/C 6000000 School Bus
Procedure: FMVSS 217
NHTSA No: C00000

Photograph to:
Night Night and Morning Illumination (Sunset, Moon)



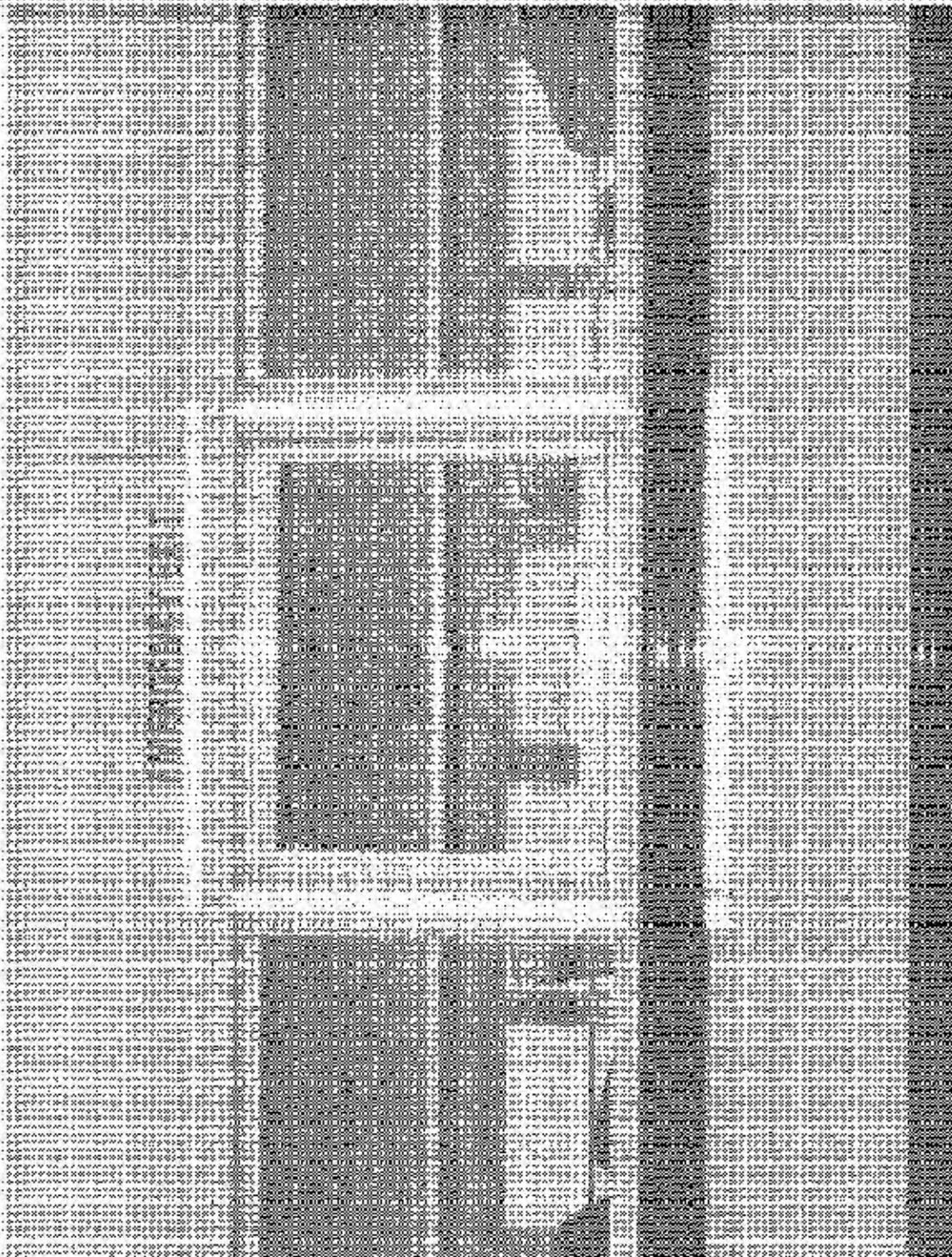
Test Vehicle: 2005 A/C ACURA 3.5 CL

Precedence: FIVE

Unit: 3A

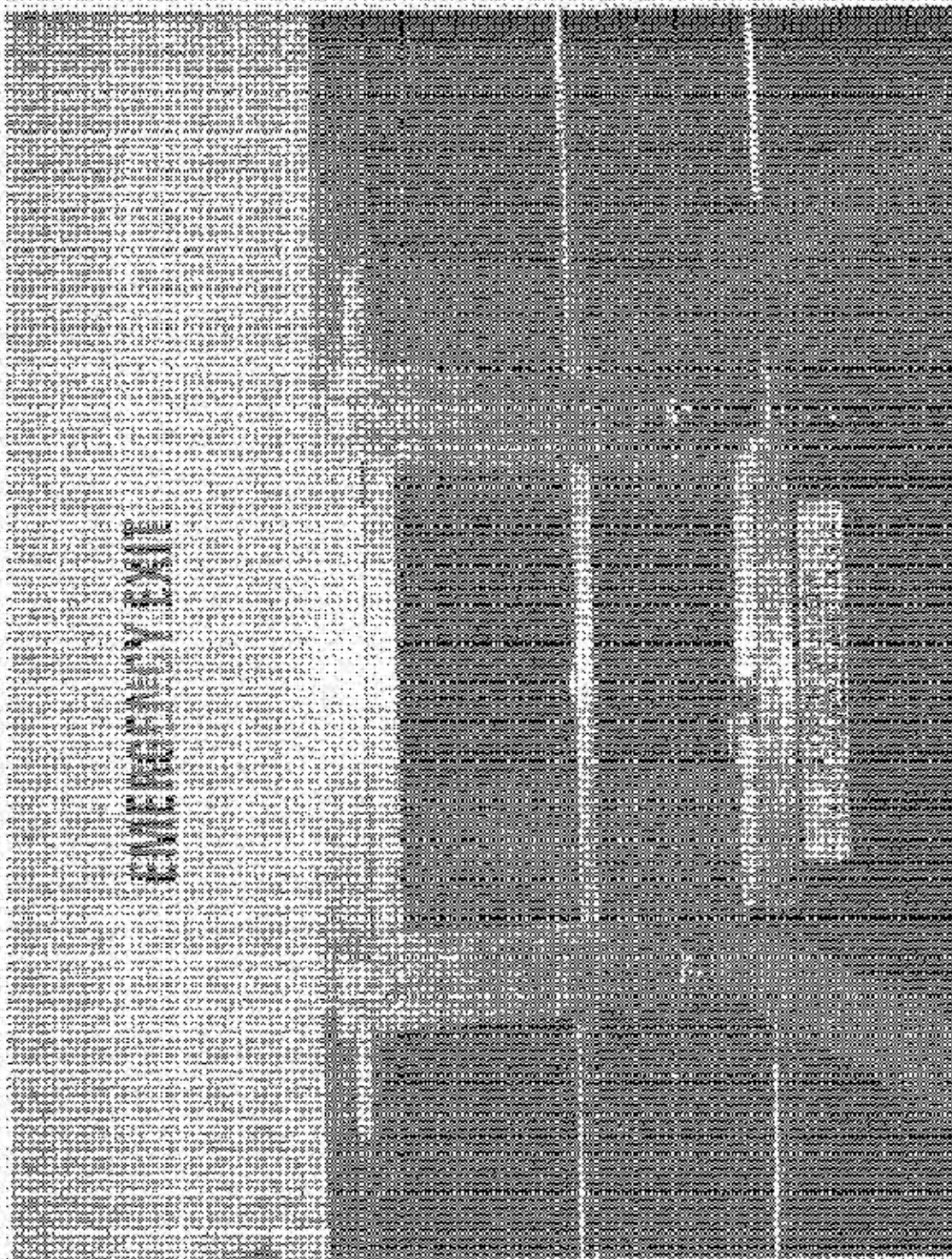
Photograph 1

Right Front Side View of Vehicle



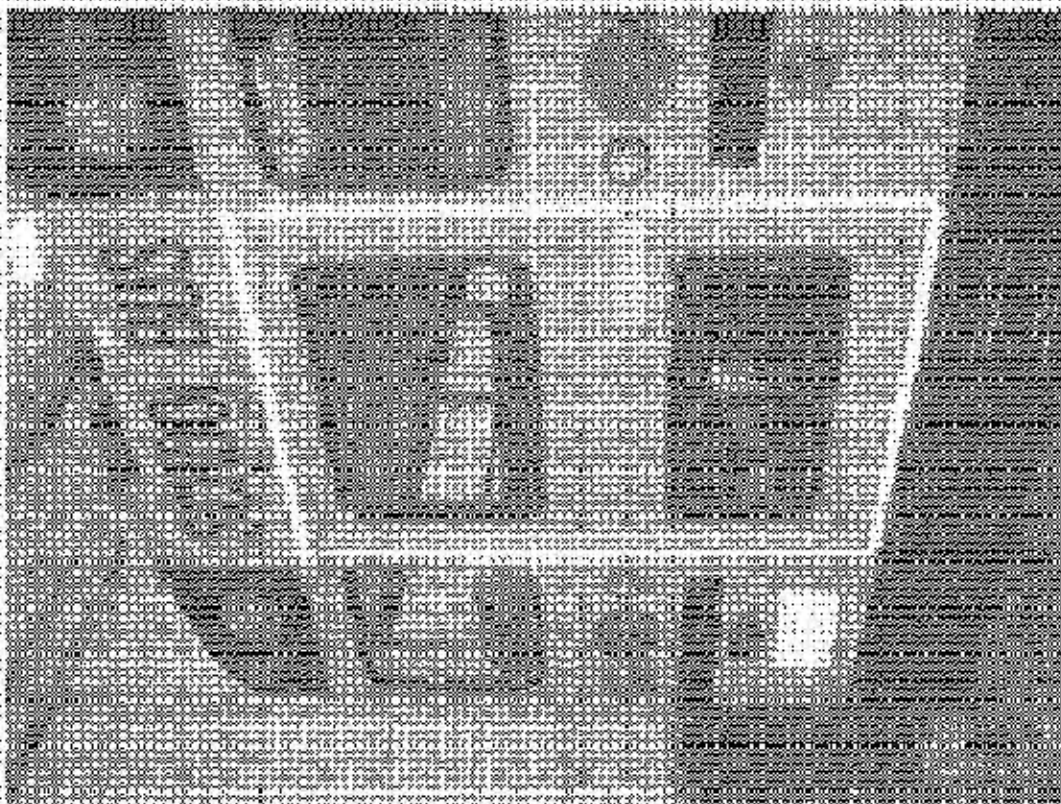
Test Vehicle: 2003 A/C Ford Focus Sedan
Procedure: FMVSS 217
NHTSA No. CEC002

Photograph 12:
Right Rear Side Window Identification (Outside View)



PHOTOGRAPH 13
Right Hand End (Yellow Identification) (Front View)

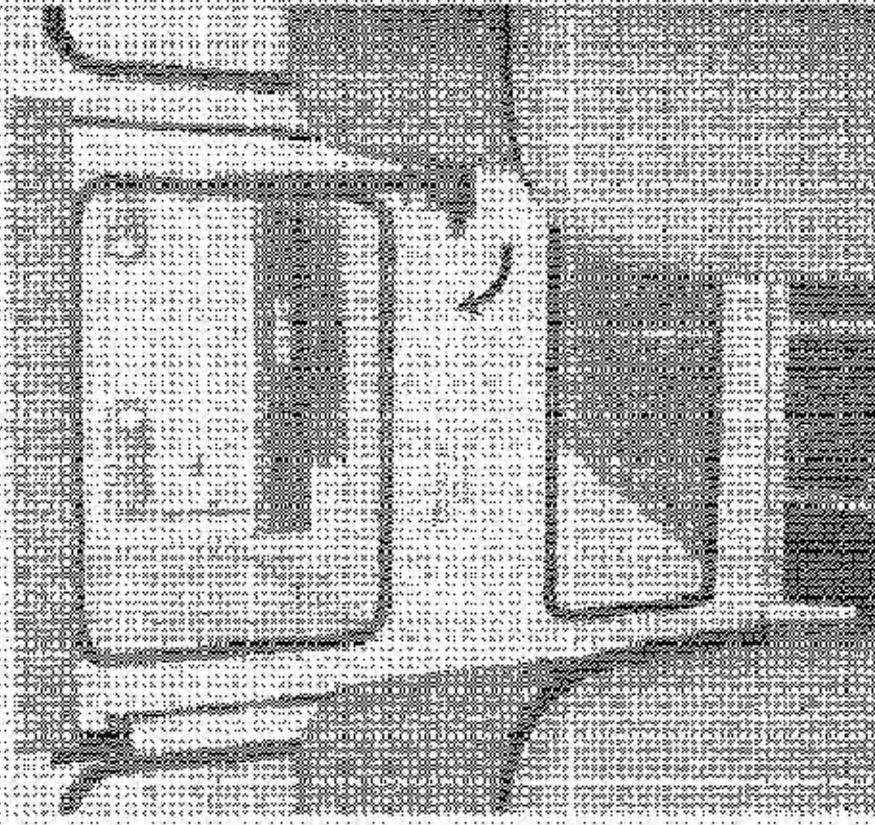
Test Vehicle: 2003 AEC100S10 School Bus
Proprietary: STRESS 217
NHTSA No: 010806



Test Vehicle: 2002 ATG1025530 School Bus
Procedure: FMVSS #17
NHTSA No: 000002

Photograph 14:
Rear Ext Contamination Outside View

2003 A/C 1035 850 School Bus



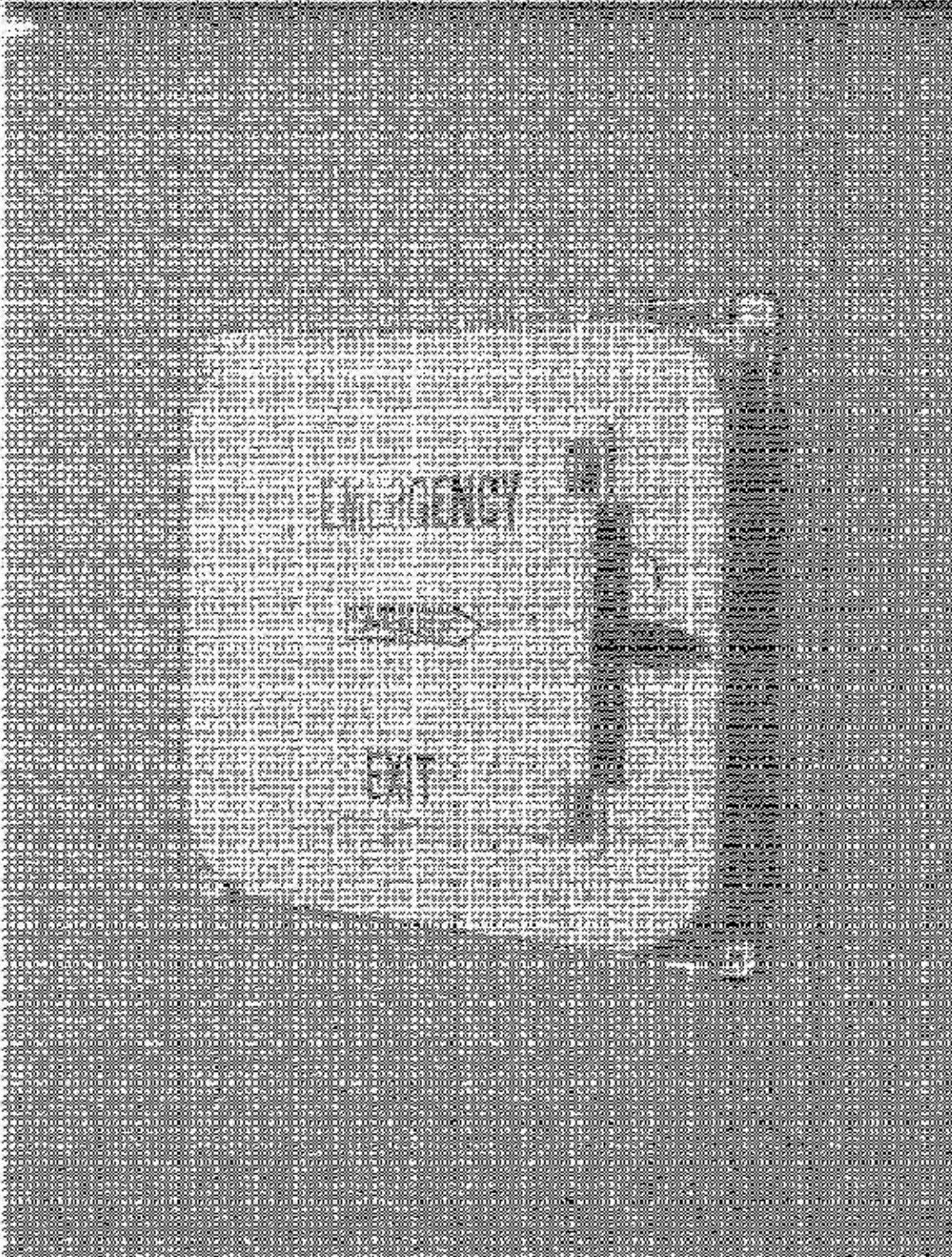
Photograph 15.

Rear Exterior Identification (Inside View)

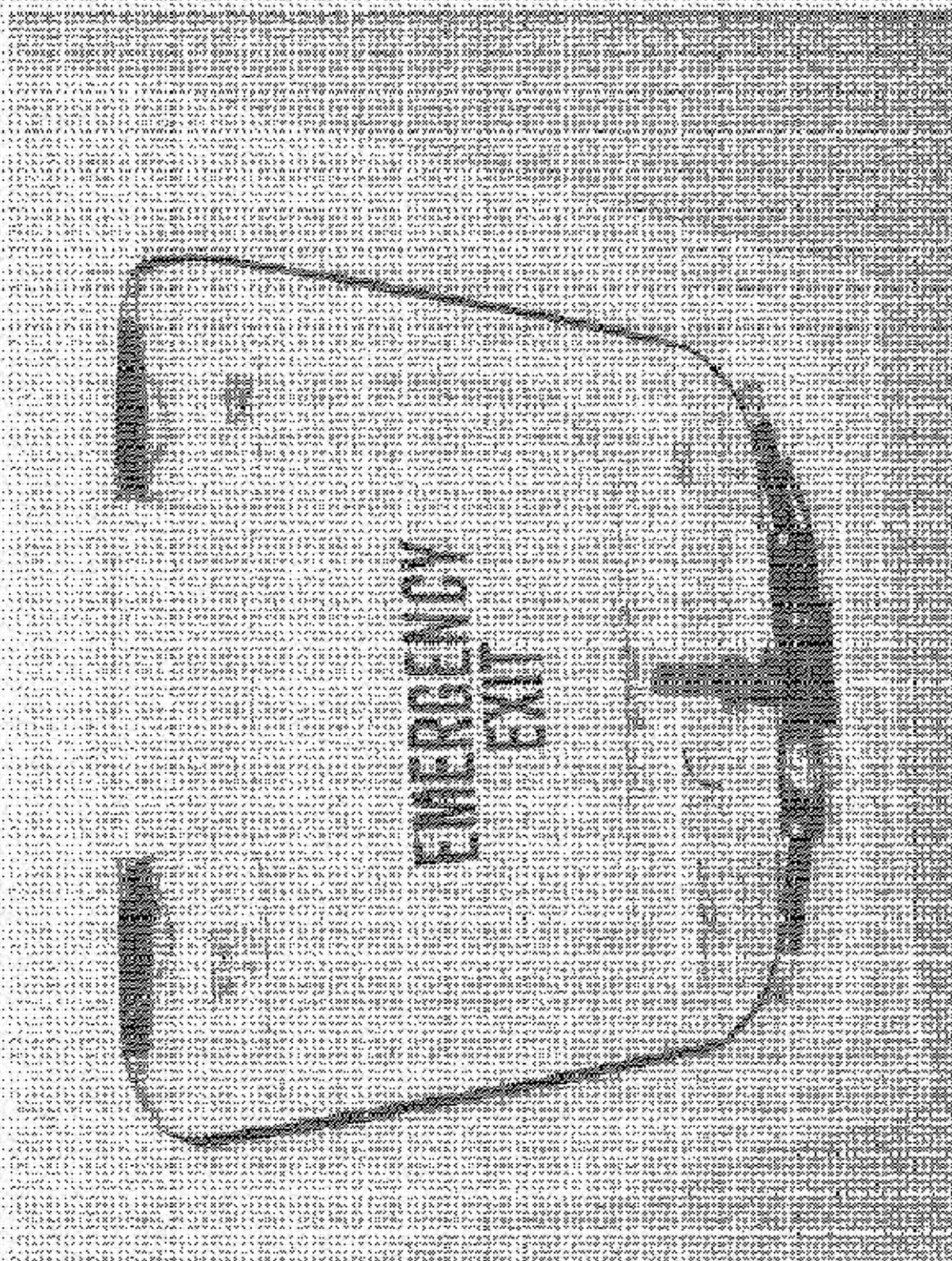
Test Vehicle: 2003 A/C 1035 850 School Bus

Procedure: FMVSS 217

NHTSA No. CMV02

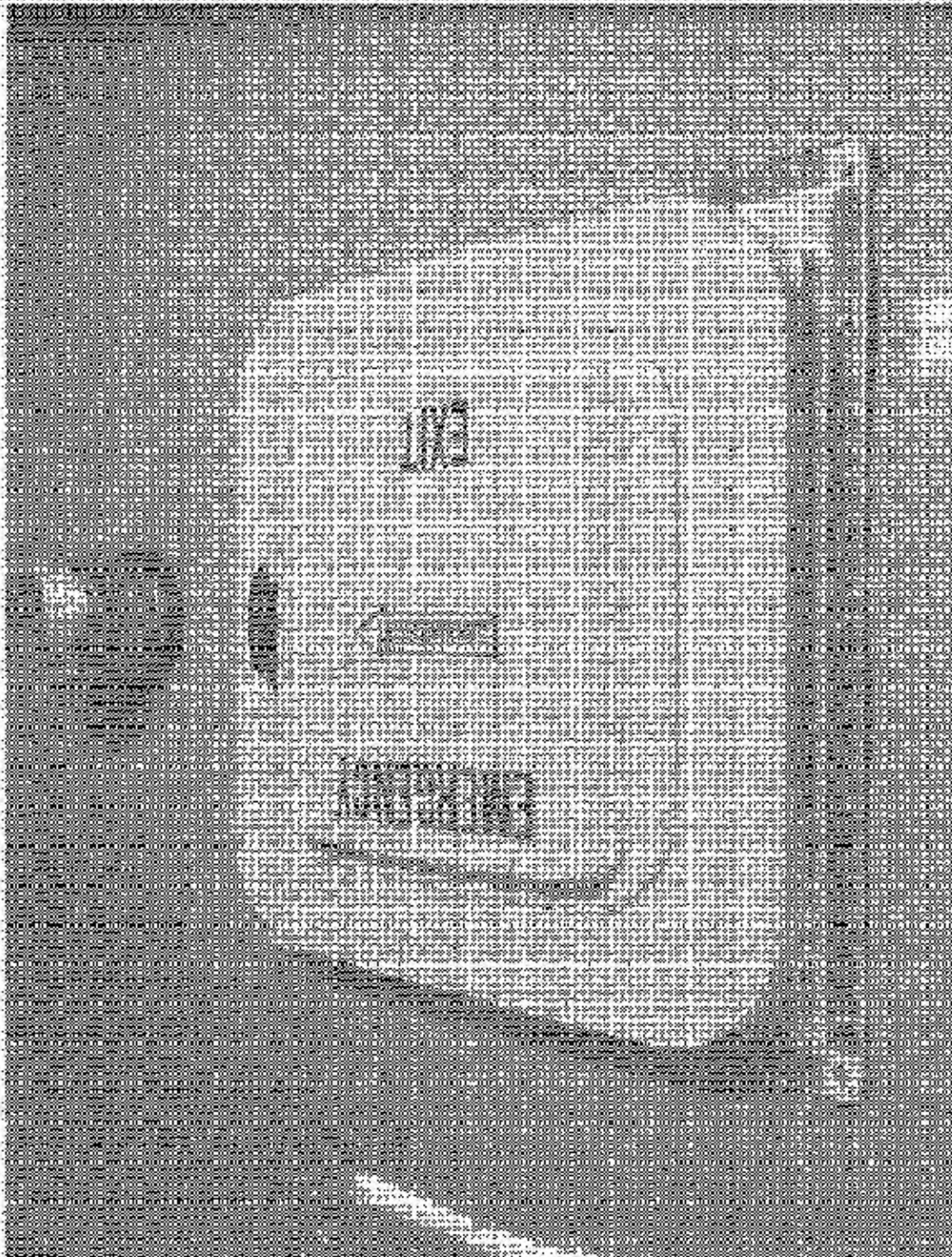


Fast Vehicle: 2001 A/C 1029530 School Bus
Photograph 18:
Front Right Mirror Identification: Outside View
Procedure: FMVSS #17
NHTSA No: C00902



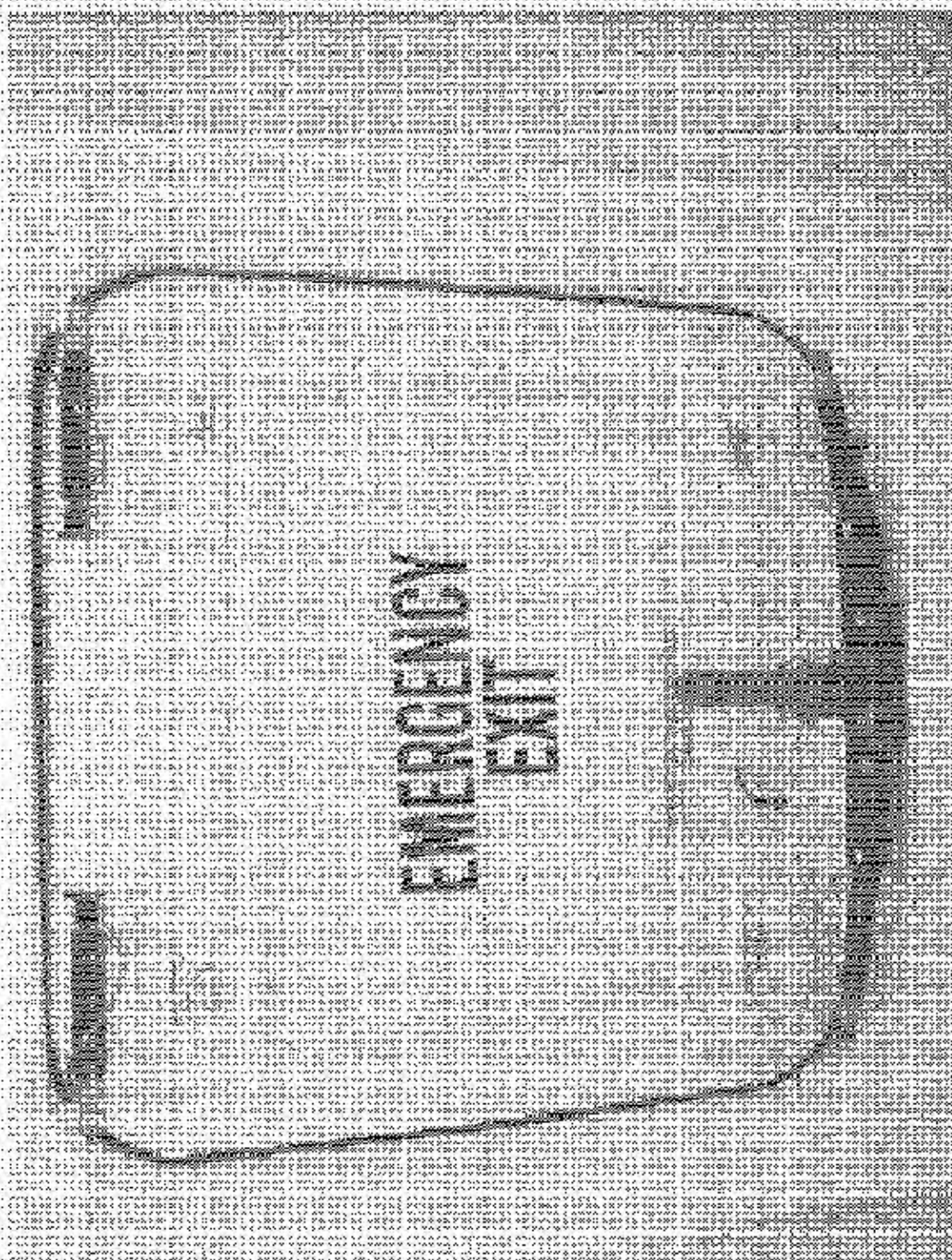
For Vendor: INSTANT CASH ON DELIVERY
Procedure: FMS 217
NHISA No: C30502

Exhibit 17:
Front Floor Hatch Identification inside door

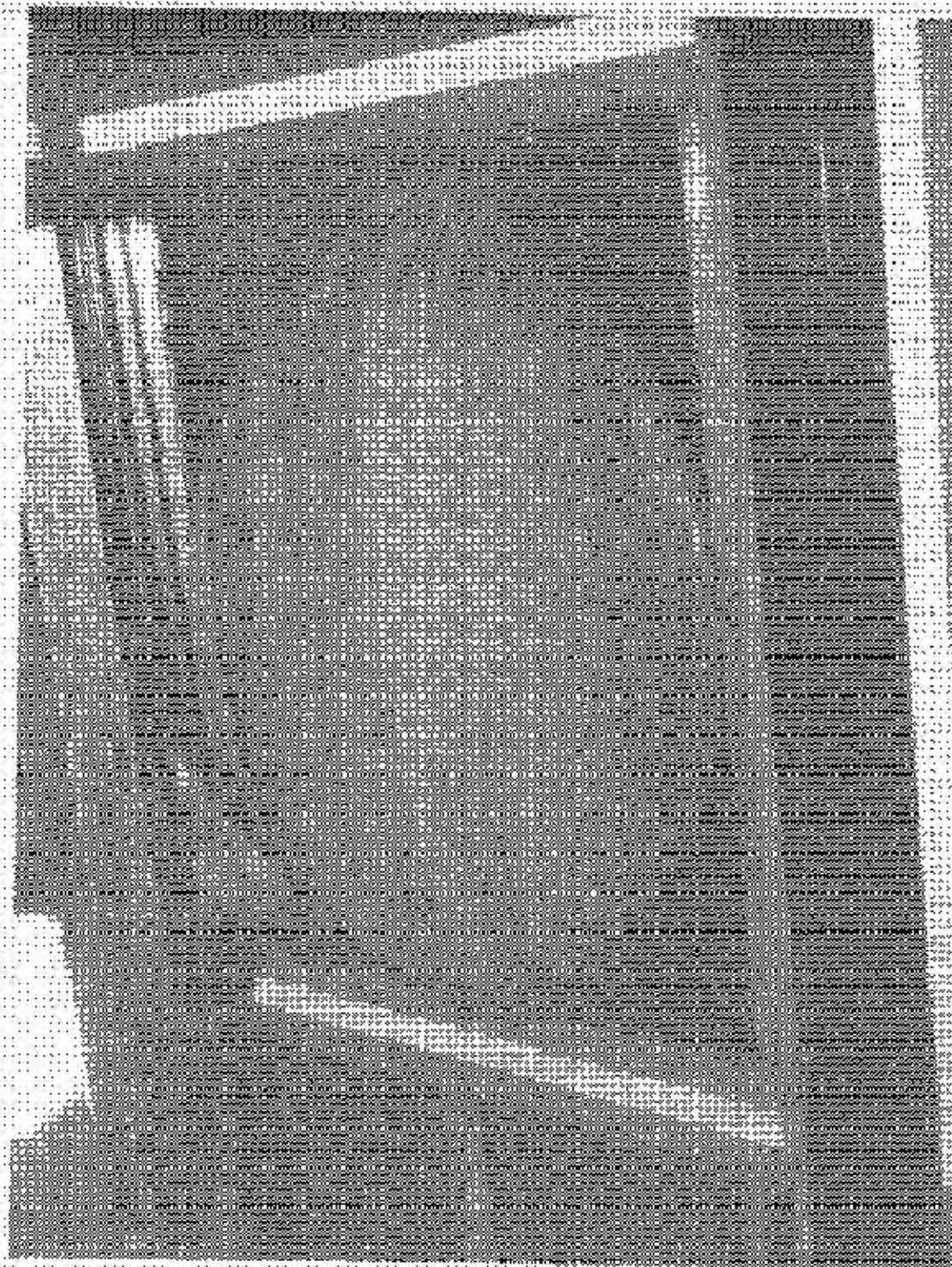


Test Vehicle: 2000 A TC 1035500 School Bus
Procedure: PAVSS 217
NHTSA No: 000001

Photograph 18:
Rear View of Vehicle (Front View)

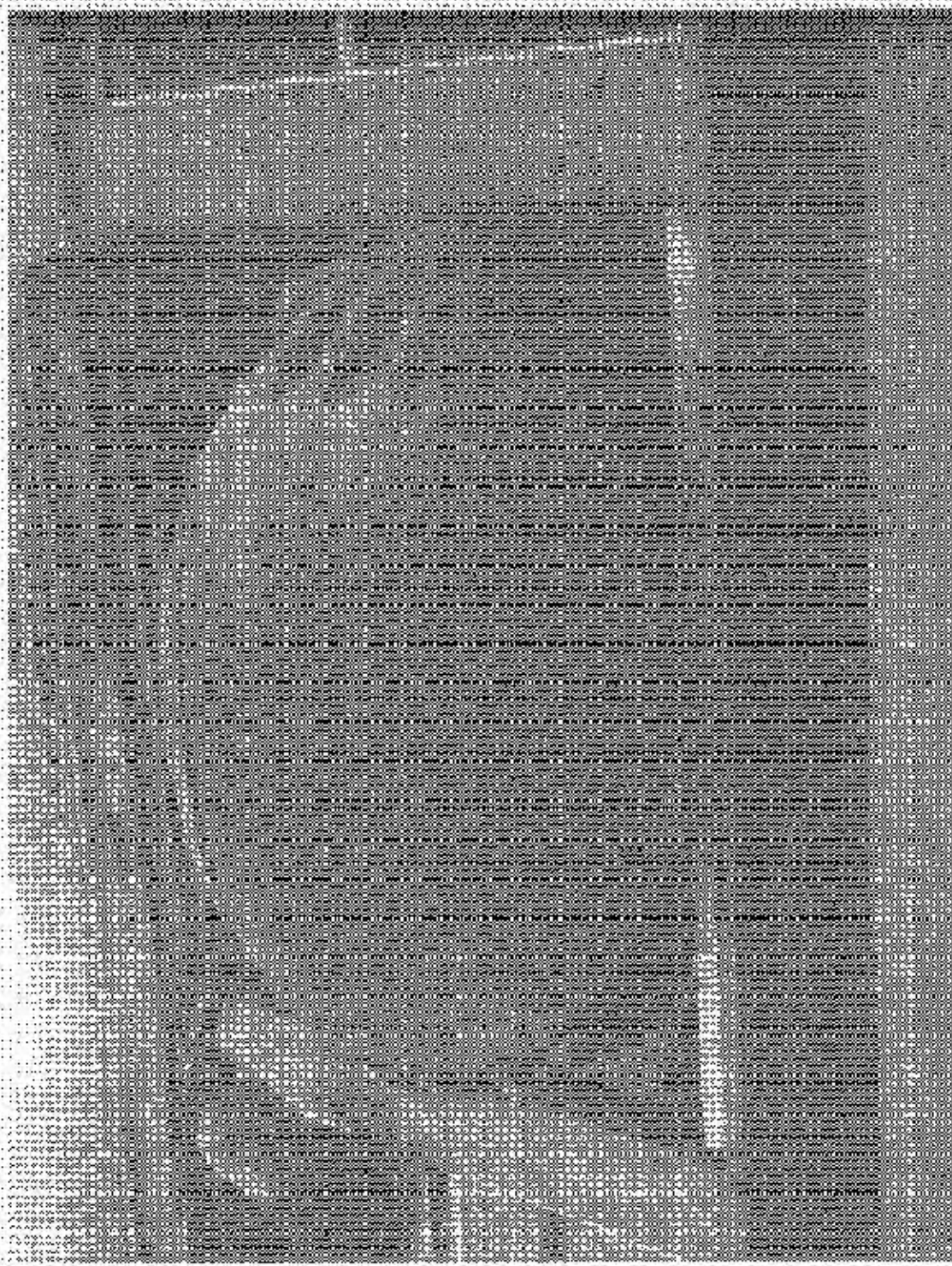


Test Vehicle: 2008 ATC C2550 School Bus
Procedure: FMVSS 217
NHTSA No: 00202
Photograph 19
Seat Prof Hard Installation Inside View



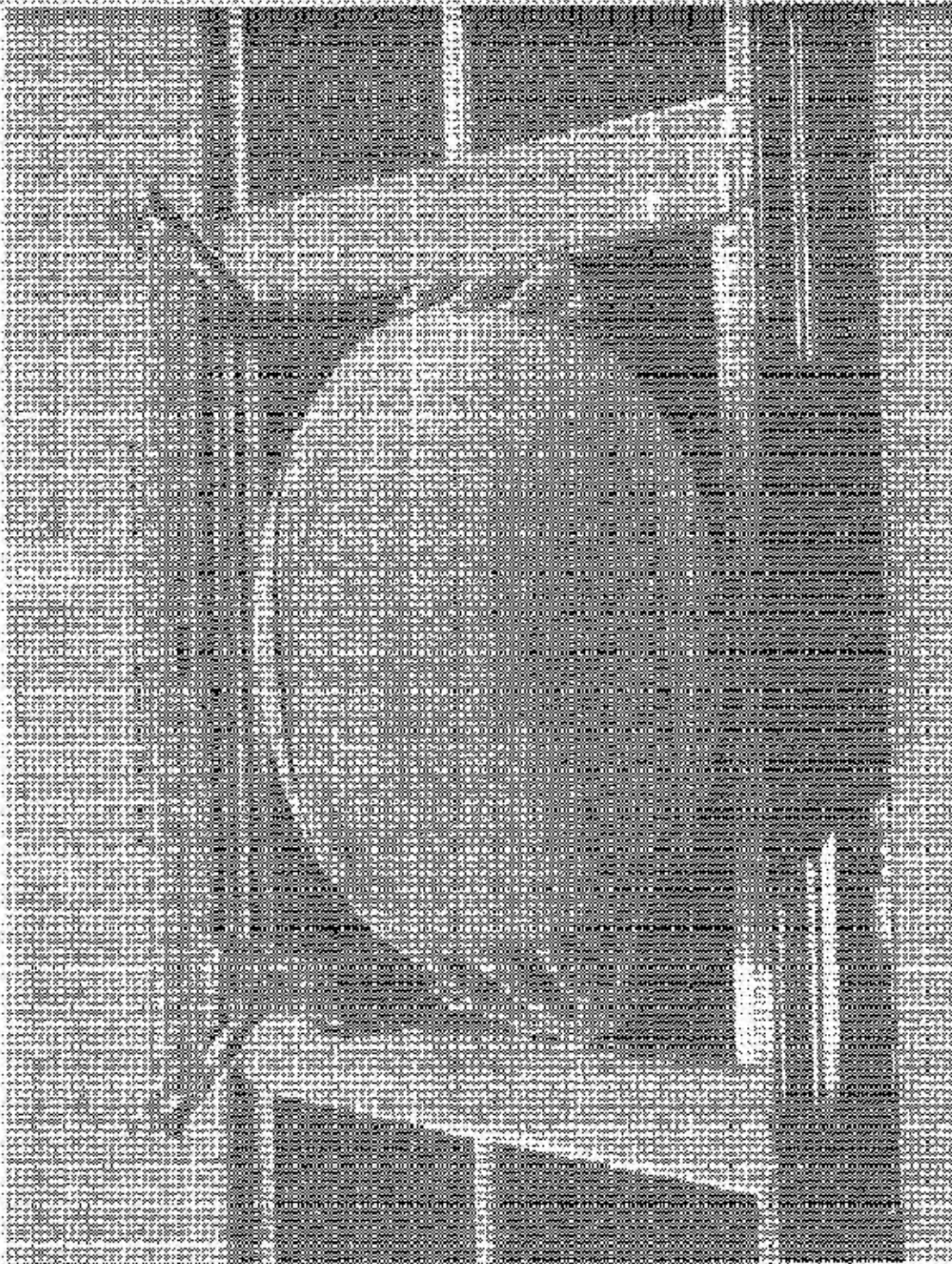
Test Vehicle: 2004 A/C 1015630 School Bus
Operator: ERN 55 217
NHTSA No: C10902

Photograph 20
Left Front View of Emergency Exit Entrance Canopy



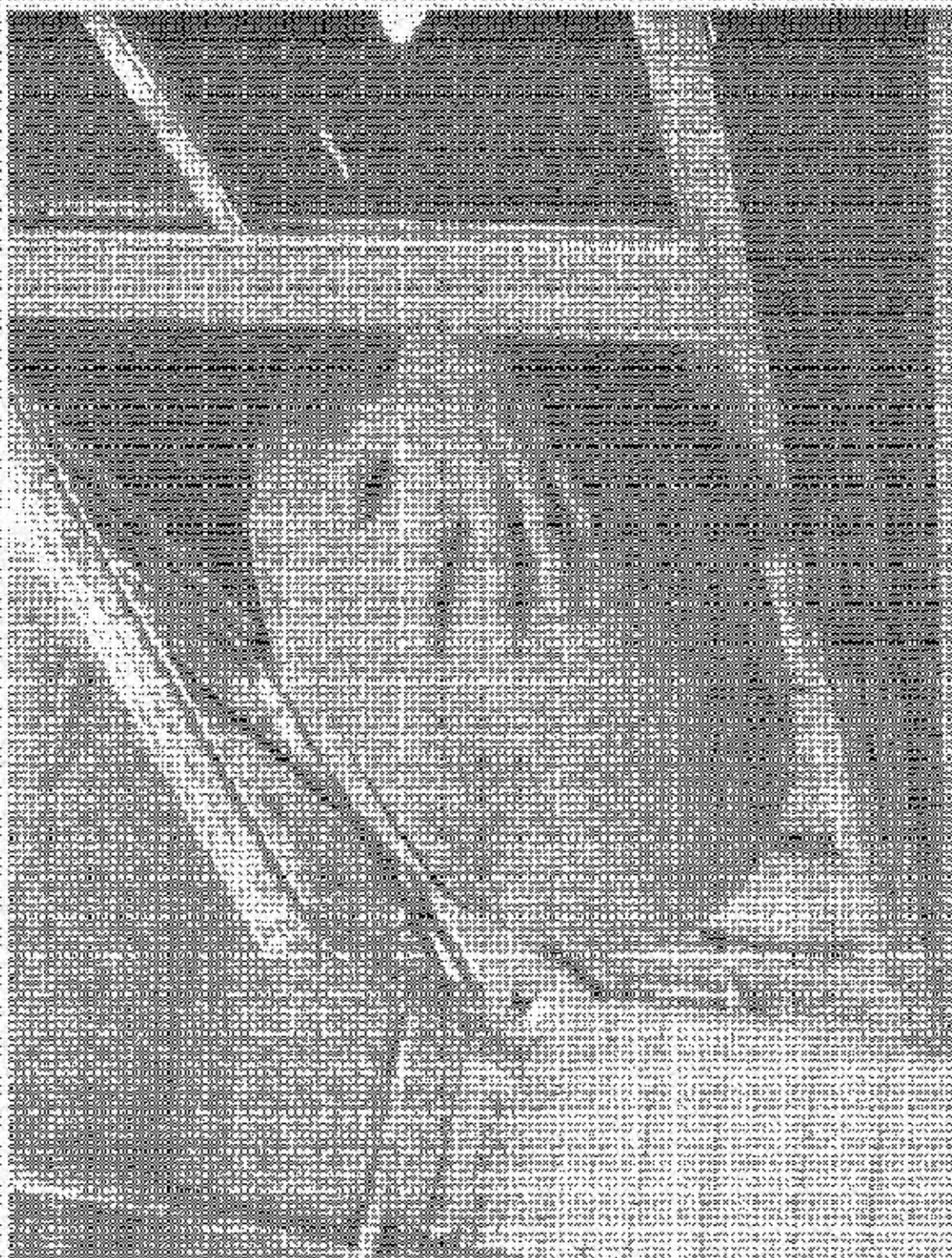
PHOTOGRAPHED BY
LEA JOEL WILSON, CHAIRMAN, EL PASO COUNTY

Not Vehicle, 2002 ATC C-350 School Bus
Procedure, FM 25.217
NHTSA No. 009308



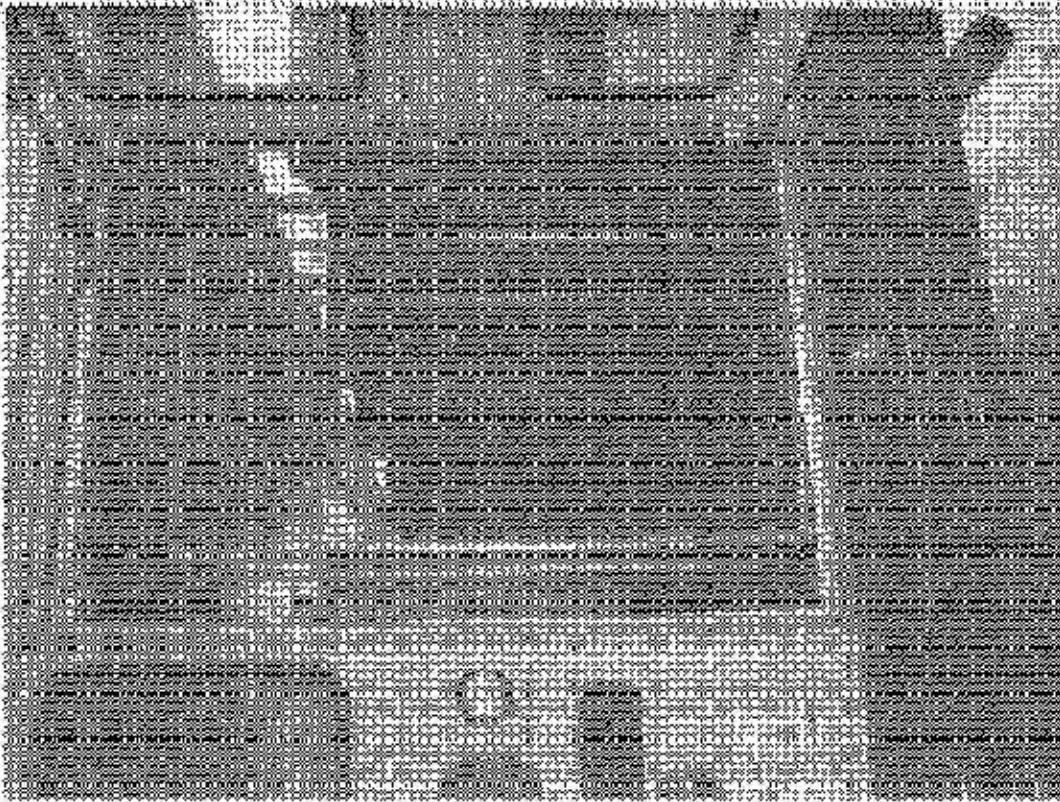
Test Vehicle 2003 A/C ICSS600 School Bus
Procedure #MV55-217
NHISA No. C-10402

Photograph 22
Right Front Window Emergency Exit Impact Clearance



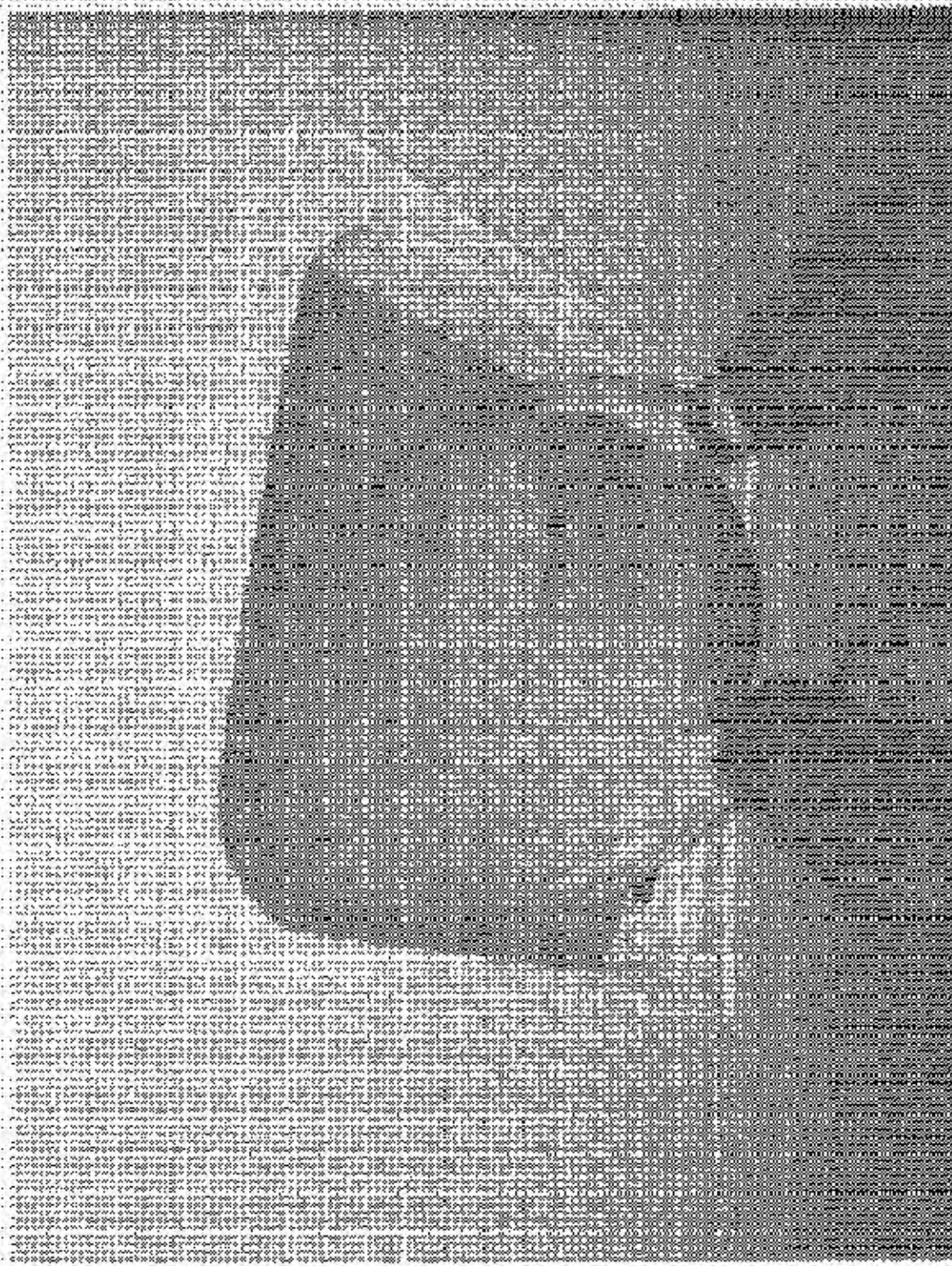
Inst. Mission: ECHS ATO KASSERLO School Bus
Procedure: FAVSS 217
NHTSA No.: C30402

Photograph 22
Eight Four Westview Emergency Exit-Exterior View

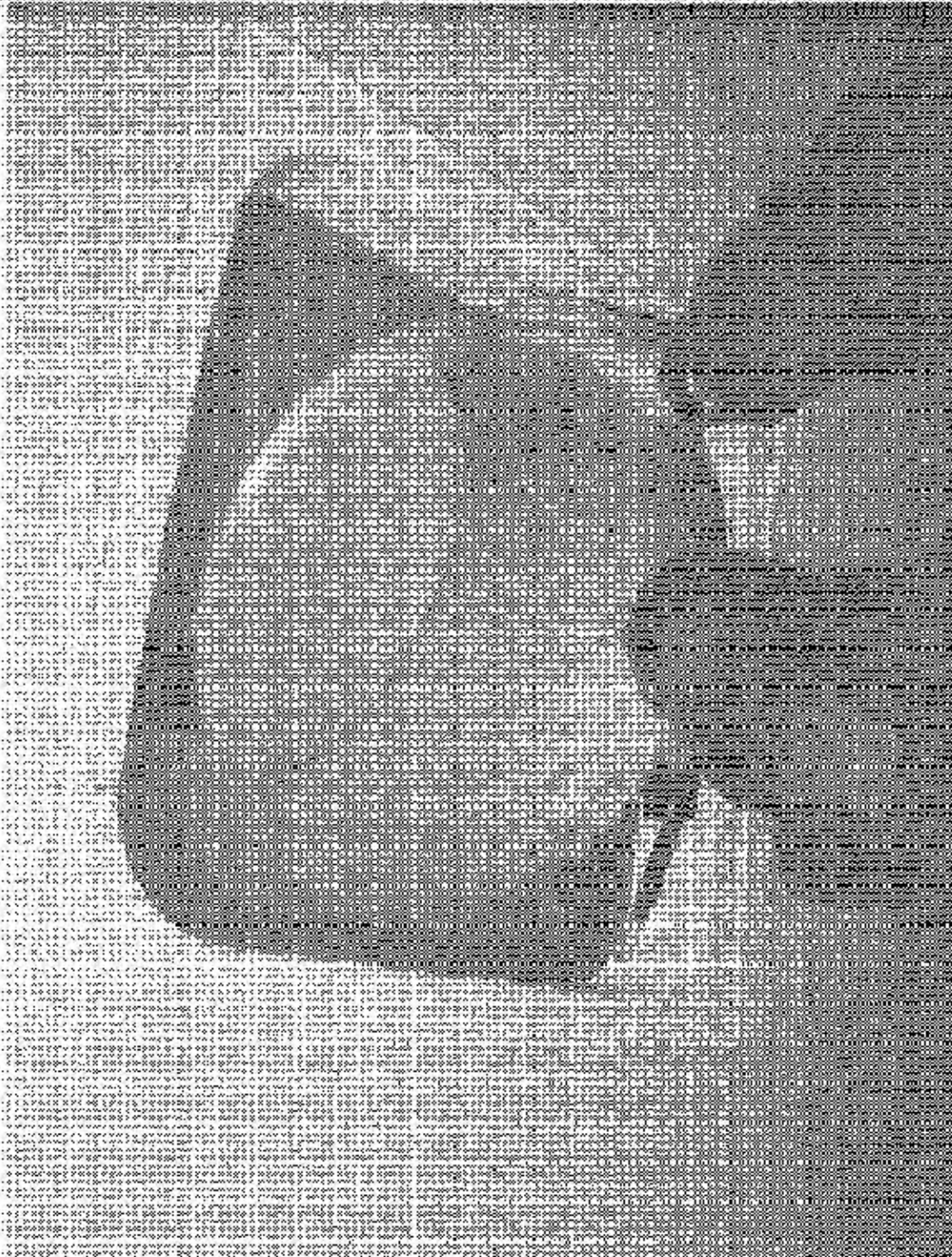


11/08/2008 2:00 PM
 Report: Test: Emergency Exit Preparedness Clearance

Test Vehicle: 2005 A/C ACES 376 School Bus
 Procedure: PWS 217
 NHTSA No: C05602

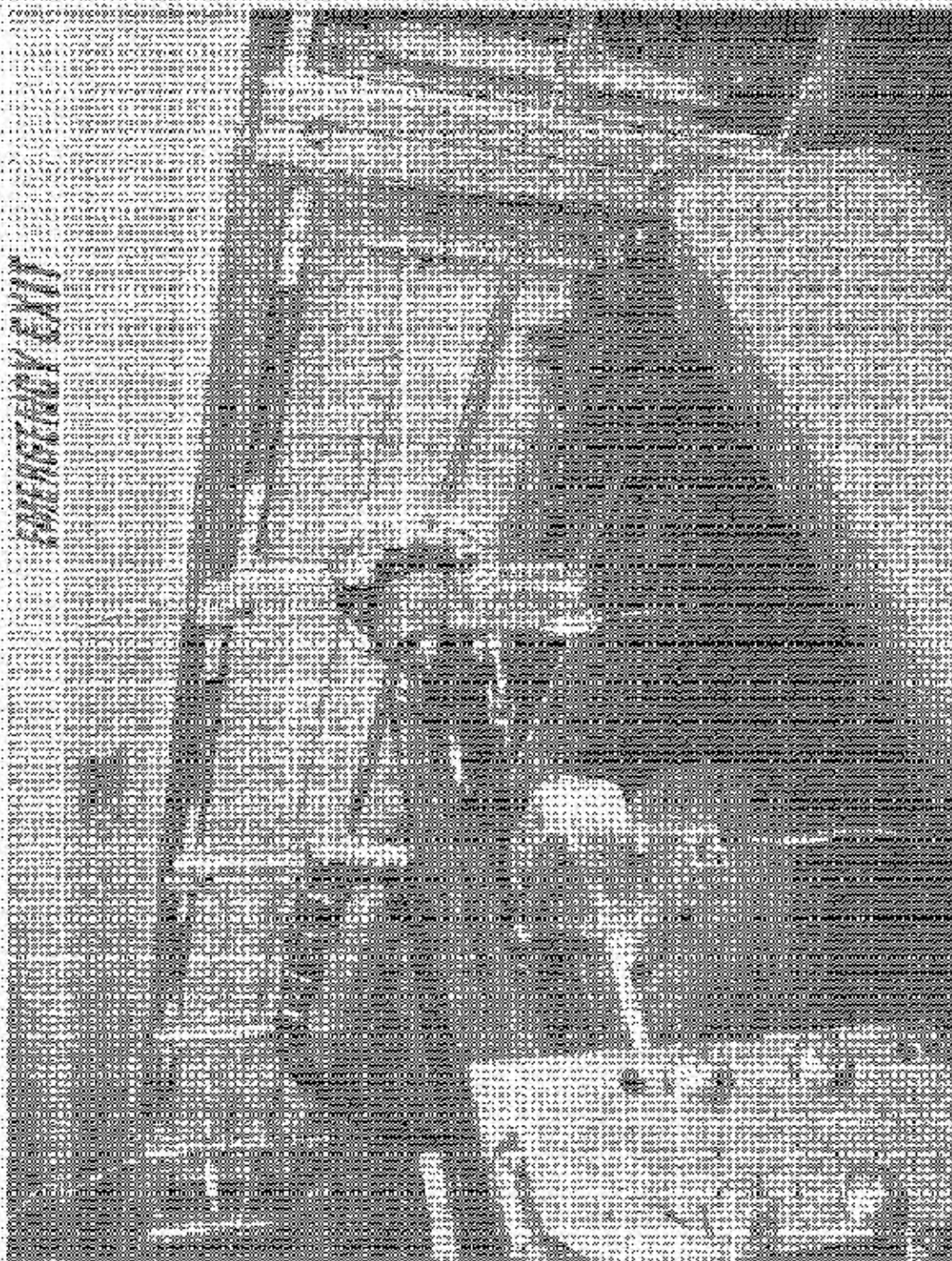


Text Version: 2003 AFD Classroom School Bus
Product: FMVSS 217
NHTSA form: CARS02
Photograph 23:
Front Roof Rack Emergency Exit Release Operation



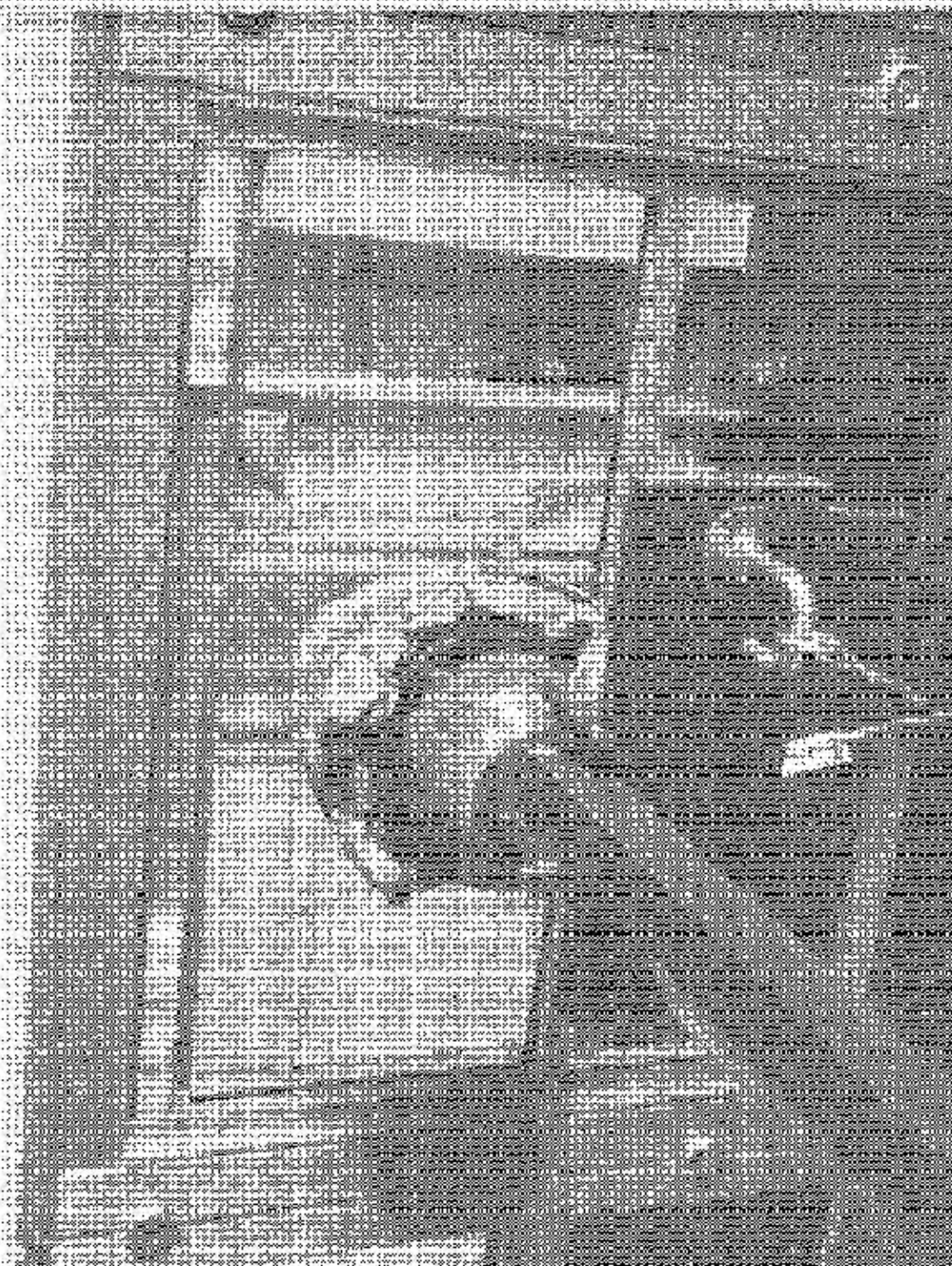
Test Vehicle: 2003 A/C IC3500 School Bus
Procedure: HAVS 21
NHTSA No: C40902

Photograph 26
Seat/Rear/Ride Emergency Exit Release Controls



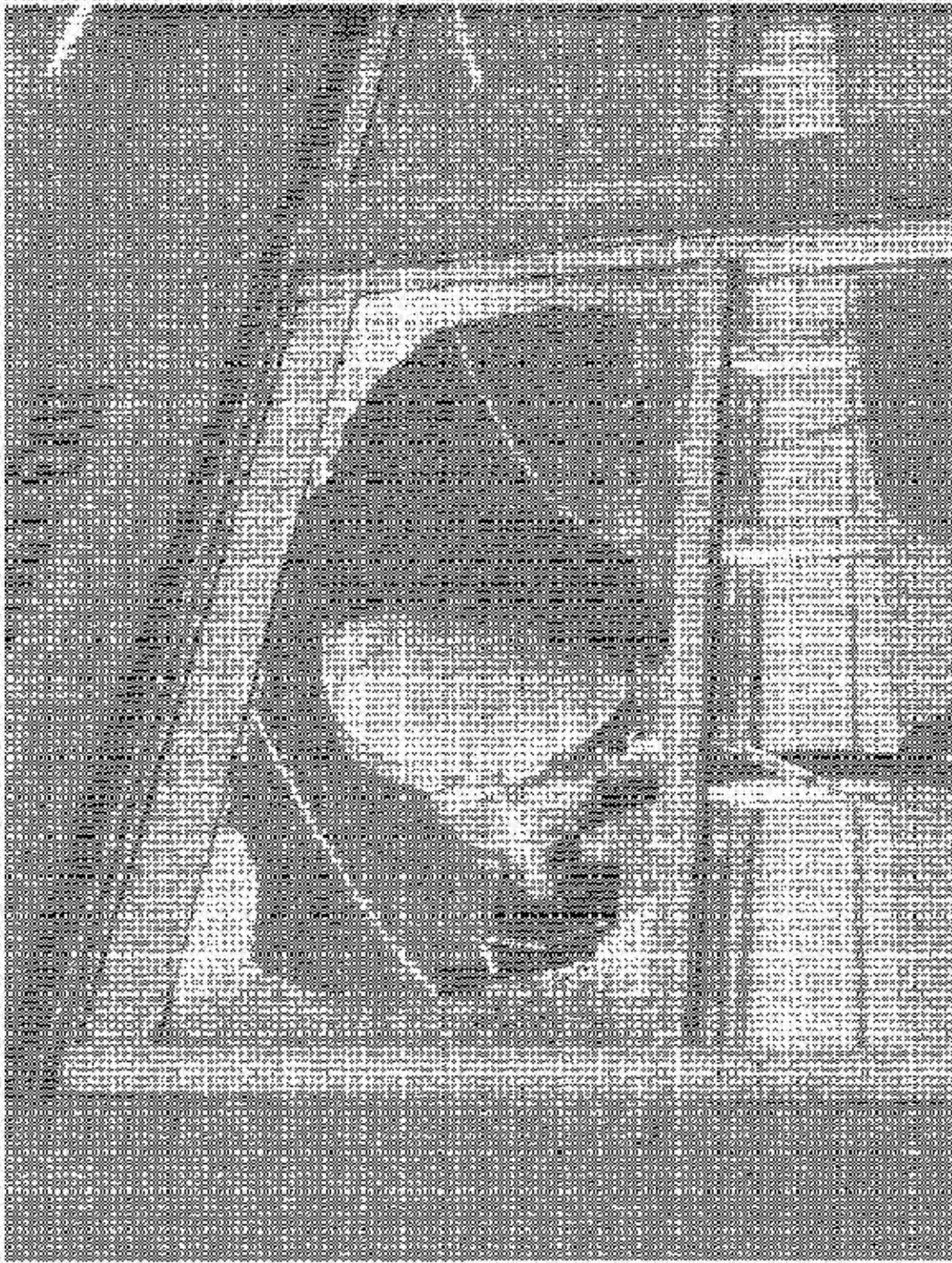
PHOTOGRAPH 27
Loading Picture

Yael Yonina 2023 ATC/CSS/SR Bureau 595
Procedure FMVSS 217
NHTSA No C00002



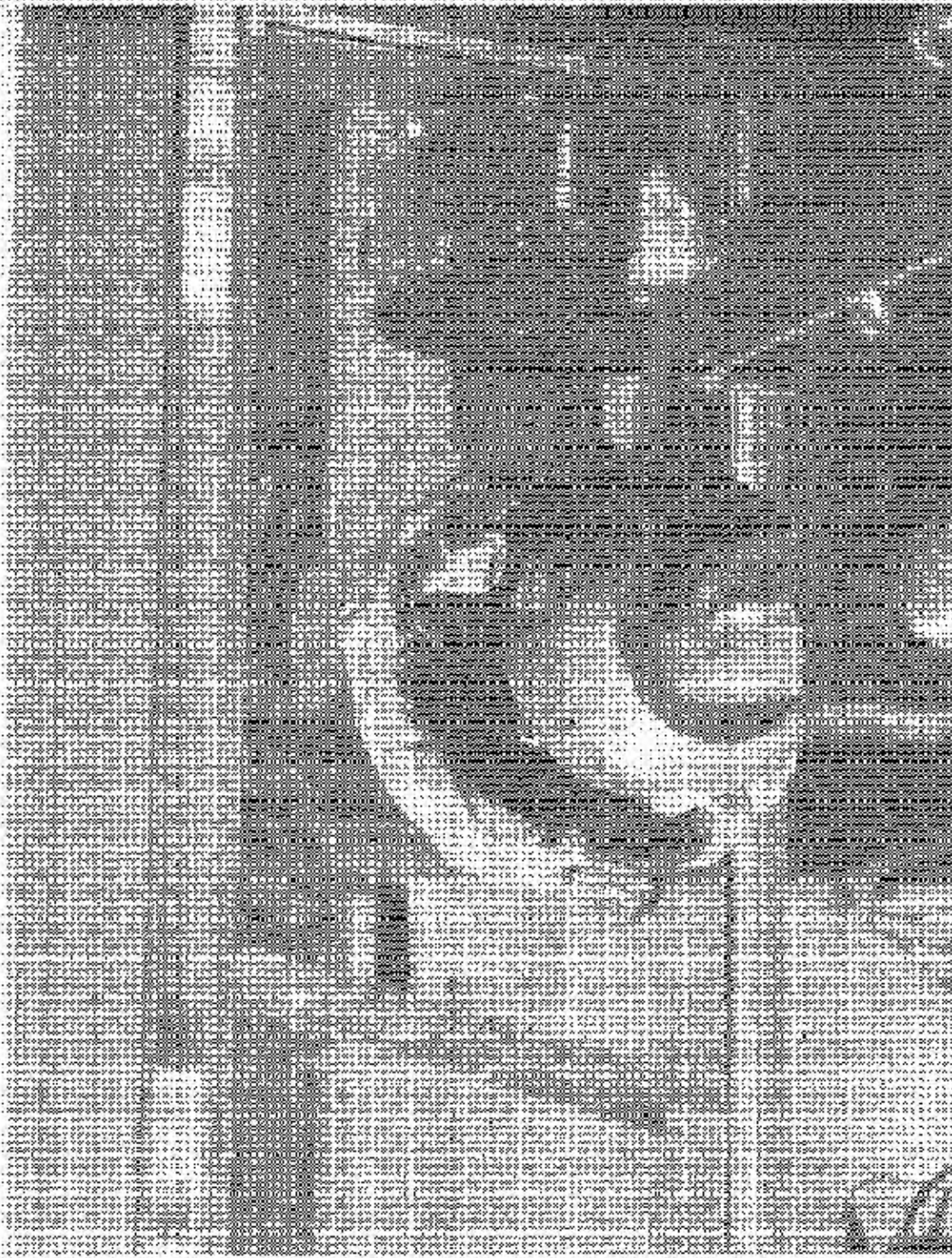
Photograph 28:
Rearview Test of Left Front Window (Pier Test)

Test Vehicle: 2000 A TC KISS School Bus
Procedure: NHTSA 412
NHTSA No: C10902



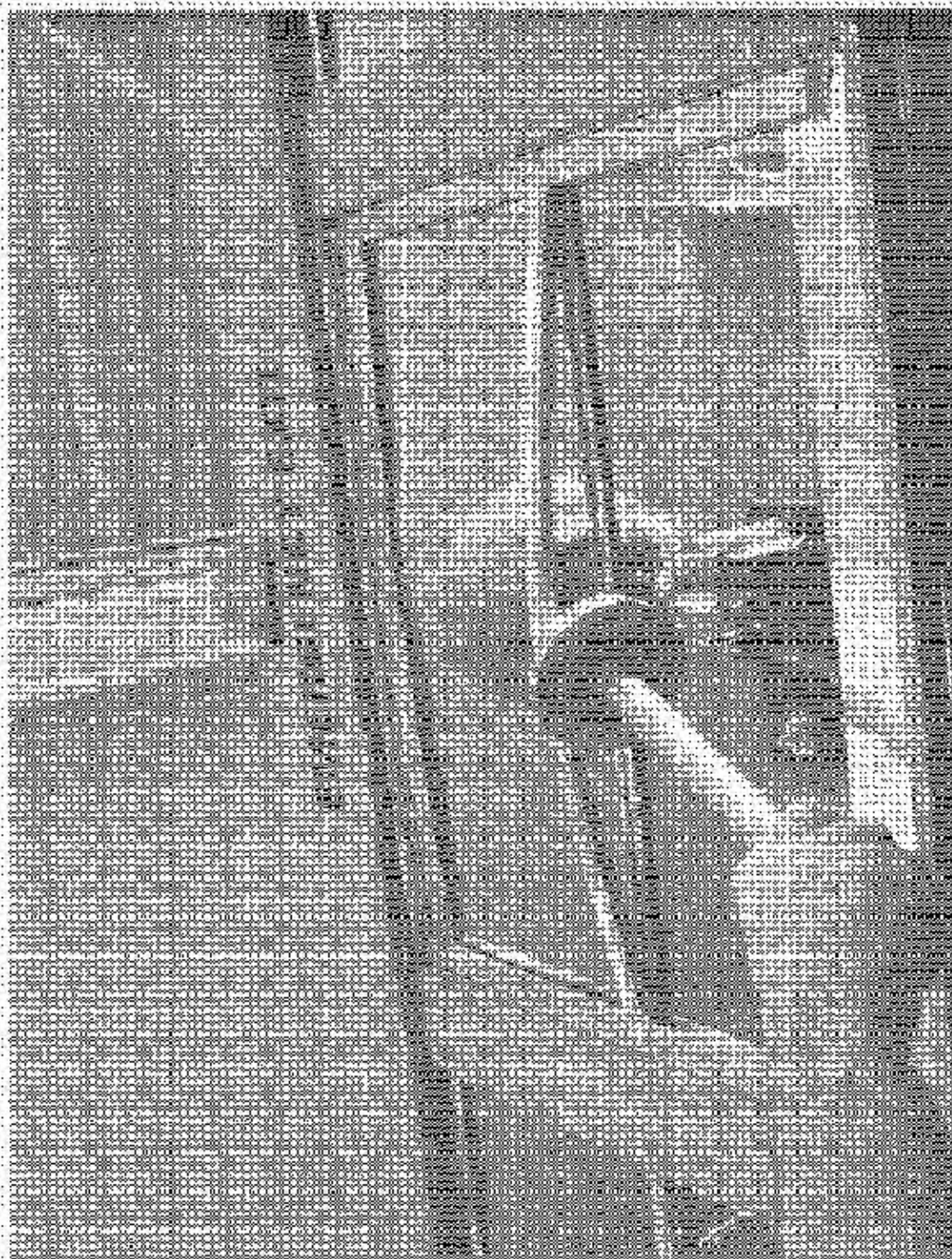
Test Vehicle: 2002 ATC C25529 School Bus
Procedure: FMVSS 217
NHISA No: Q39302

PHOTO 45/129
Side View Test of Left Front View Mirror Post Test



PHOTOGRAPH 90:
REVISION 152 OF 152 (152) (152) (152)

Test Vehicle: 2012 ATAC 152 (152) (152)
Procedure: FMVSS 217
NHTSA No. 152 (152) (152)



Test Vehicle: 2002 ATC NC3550 56WOL BUN

Procedure: FMV SS 217

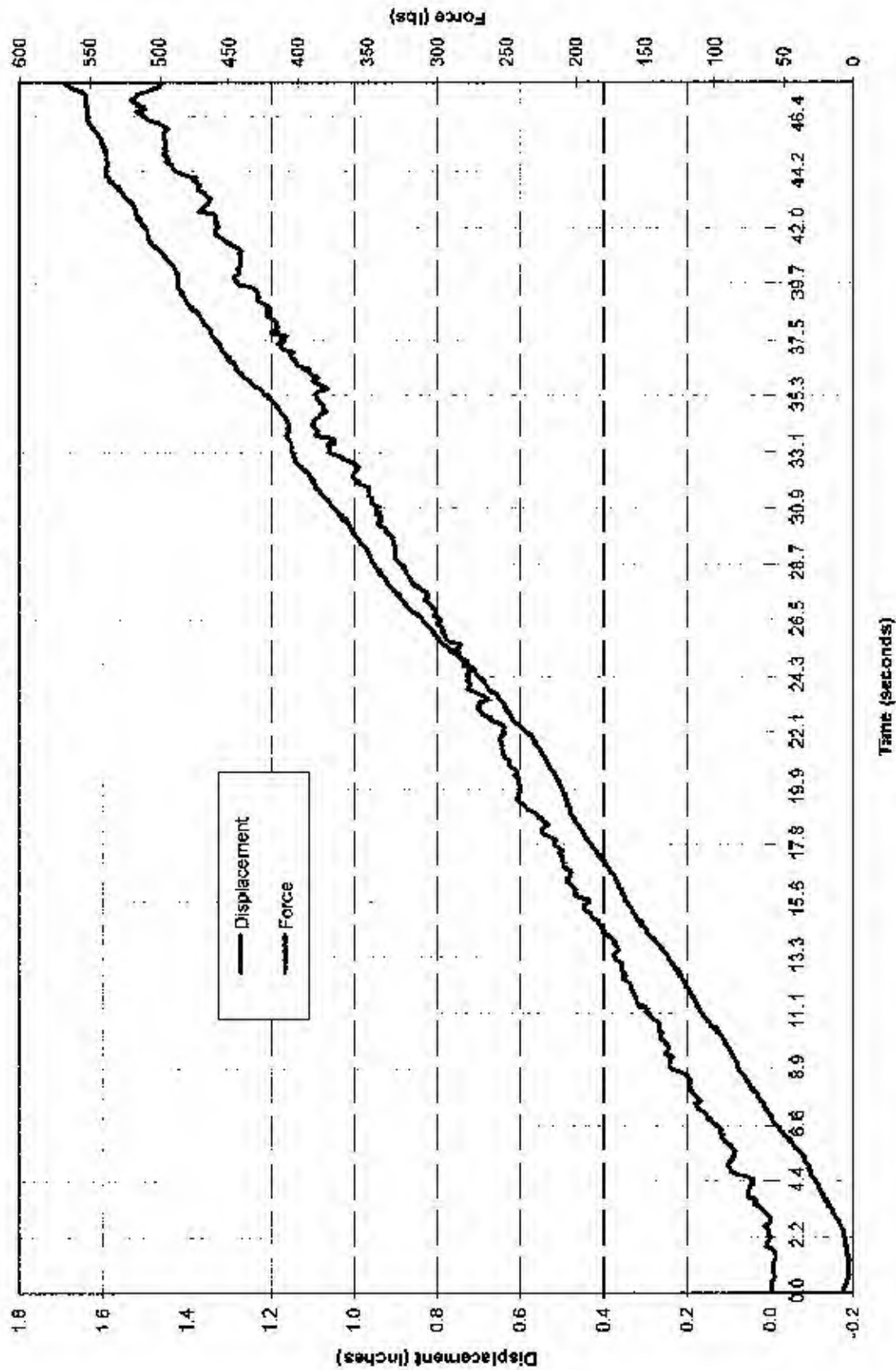
NHTSA NC: C30362

Photograph 2A

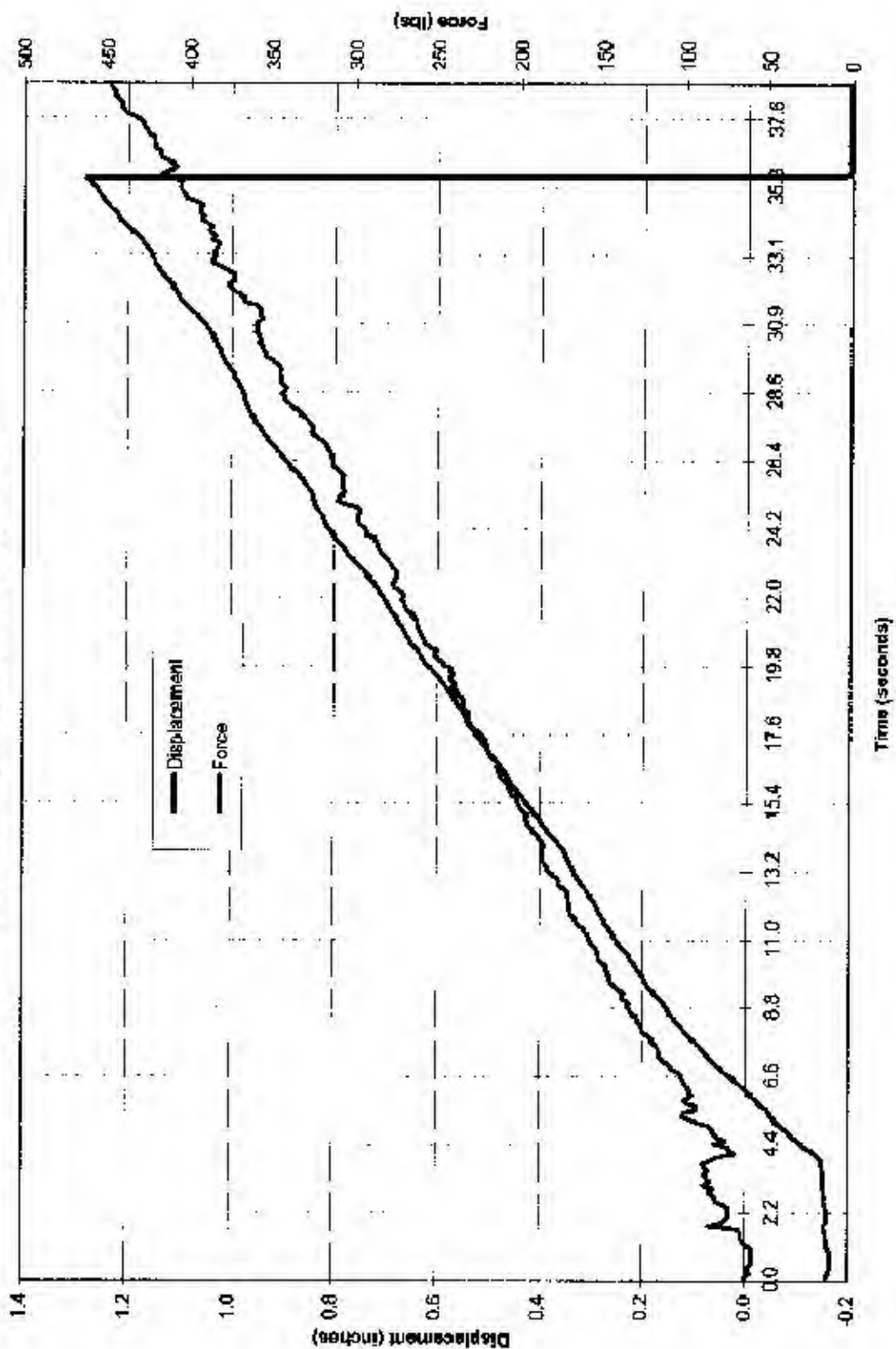
Reference: Test of Right of Way Window (in Progress)

SECTION 6
TEST PLOTS

FMVSS 217 NHTSA No: C30902
 ATC IC3S530 Right Front Window - Upper Pane



FMVSS 217 NHTSA No: C30902
 ATC IC3S630 Left Front Window - Upper Pane



SECTION 7
LABORATORY NOTICE OF TEST FAILURE

LABORATORY NOTICE OF TEST FAILURE TO OVSC

Test Procedure:	FMVSS 217	Test Date:	March 17, 2003
Test Vehicle:	2003 ATC IC3S530	Test Lab:	MGA Research Corporation
NHTSA No.:	C30902	Project Engineer:	Michael Janovicz
Contract No.:	DTNH22-02-D-01057	Deliv. Order No.:	1
MFR.:	American Transportation Corporation	VIN:	4DRBRABN73B955119
Build Date:	10/02		

TEST FAILURE DESCRIPTION

The reflective tape outlining the outside opening of the front and rear roof hatches is silver in color. Per FMVSS 217 the reflective tape color should be red, white, or yellow in color.

FMVSS REQUIREMENTS DESCRIPTION

49CFR571.217 Paragraph S.5.5.3.c: "Each opening for a required emergency exit shall be outlined around its outside perimeter with a retroreflective tape with a minimum width of 2.5 centimeters and either red, white, or yellow in color."

Remarks: No remarks.

Notification to NHTSA (COTR): Amanda Prescott

Date: March 17, 2003

By: 